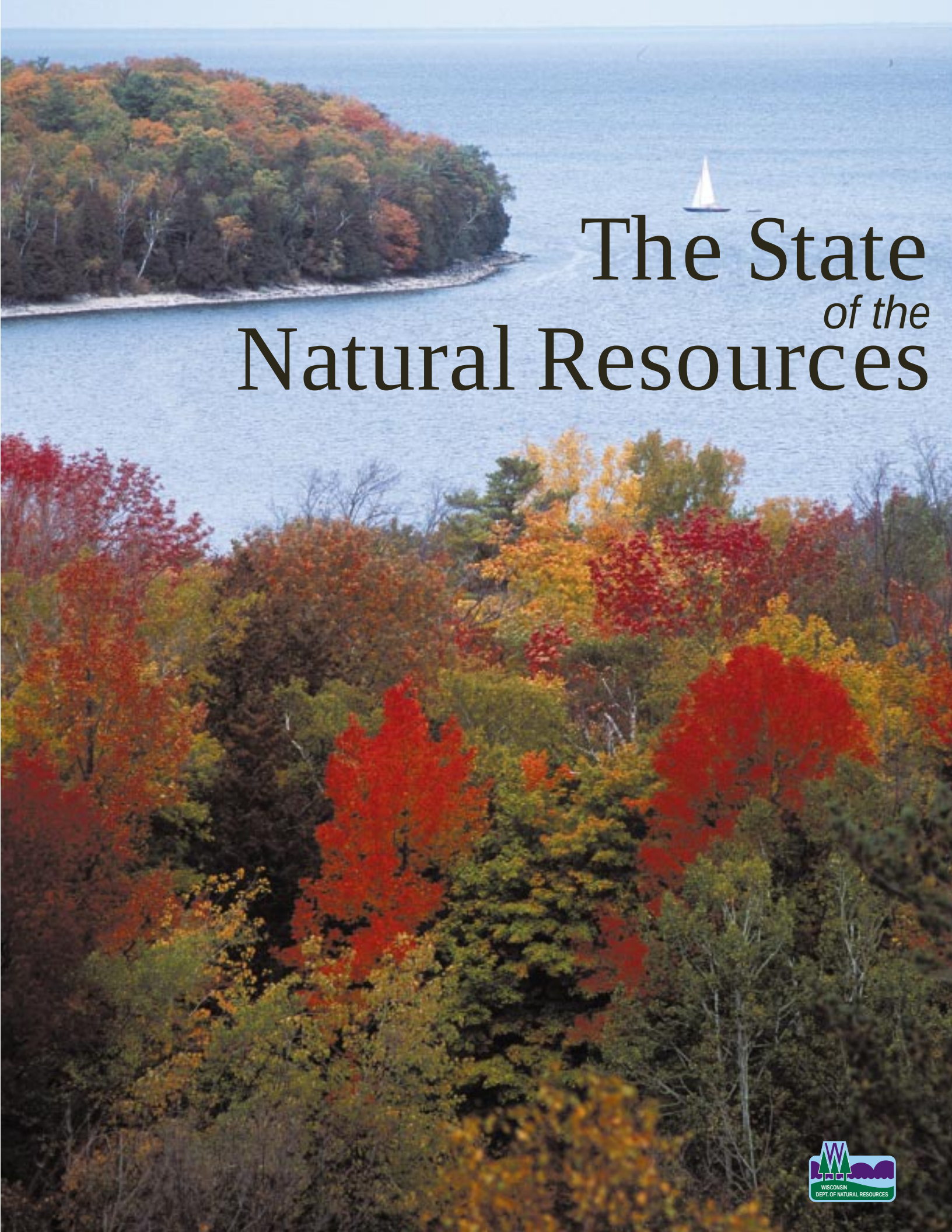
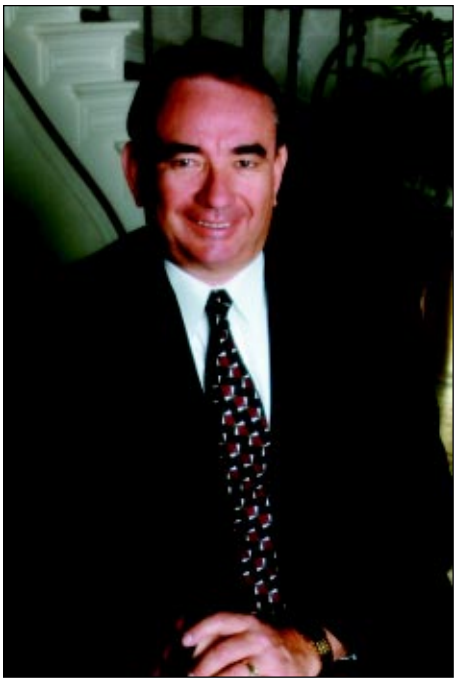


The State *of the* Natural Resources

WISCONSIN
DEPT. OF NATURAL RESOURCES



As Wisconsin citizens, we are proud of our state and treasure its natural beauty and abundant natural resources. Indeed, we are blessed with clean and plentiful water, expansive forests and fields, and fish and wildlife populations that are the envy of the nation.

On any day and in any season, Wisconsin is a special place because of our natural resources. And on any day you can find tens of thousands of our citizens and thousands of our visitors enjoying the outdoors in many different ways.

With great gifts come great responsibilities. It is the department's intention to report to its shareholders and engage them in the responsibility we all share to future generations, our duty as stewards of the natural resources our children and our grandchildren will inherit.

—Governor Tommy G. Thompson

The state of Wisconsin's natural resources requires the commitment of Wisconsin's citizens for our environmental well-being. That is the core message of our first-ever State of the Natural Resources report.

This report on the natural resources health of our great state comes from the men and women of the Department of Natural Resources. These dedicated Department employees do exemplary work on behalf of Wisconsin's natural resources. But we are few among the many — only one person out of every 18,000 Wisconsin citizens works for the DNR. And the lands we directly manage are less than 3.8% of Wisconsin's nearly 35 million acres.

So it is you, the People, who own and use the land who truly manage Wisconsin's natural resources; you, the People, who leave the most footprints on the land. But however you walk, DNR is here as a partner to help you make informed environmental choices and assist in your being good stewards.

We all can be proud of where we are as we take stock of our parks, forests and open lands and how far we have come with our comparatively clean water and air. These are gifts and you can close your eyes to imagine their essence. Then open them and see the reference points for your work and ours. These are baselines that frame our duty and guide our stewardship — baselines that will serve reports to come and by which history will judge our presence and success.

—George E. Meyer

The State *of the* Natural Resources

Wisconsin Department of Natural Resources
Earth Day, 2000

State of Wisconsin
Tommy G. Thompson, Governor

Natural Resources Board
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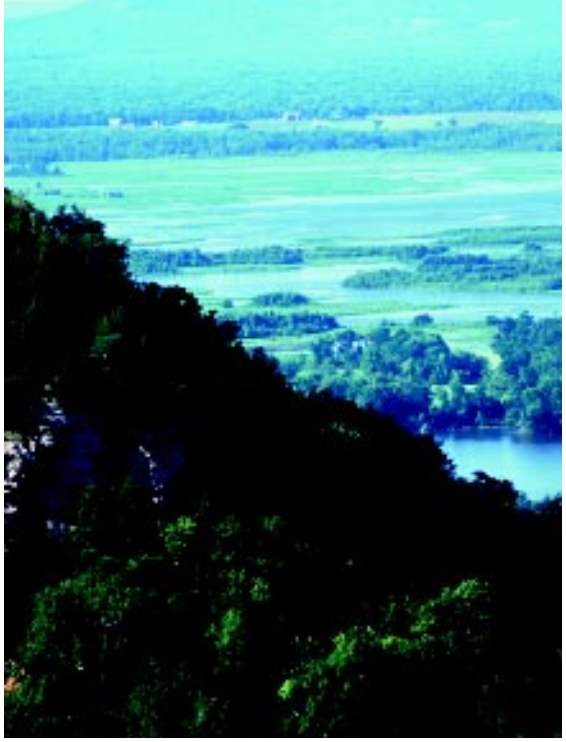
Contents

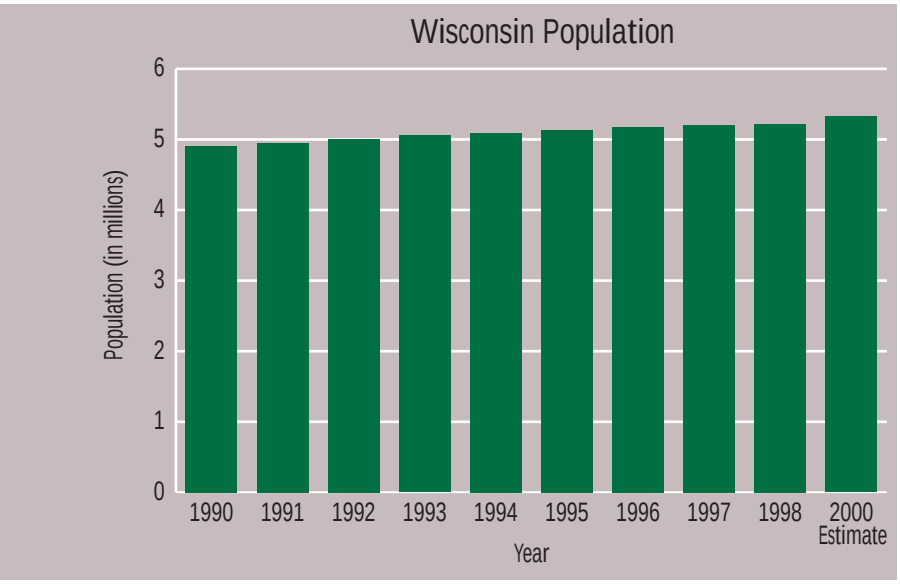
CHAPTER ONE

Wisconsin's Natural Resources



Mississippi River

This State of the Natural Resources report has been prepared as a "shareholder's report" to describe how we are doing operating many programs that help maintain and protect our state. While the Department of Natural Resources has many legal authorities for environmental and natural resources protection, the ultimate responsibilities for managing and protecting our resources lie in the hands of each of us as citizen stewards. Each of us creates pollution in our home and work lives; each of us uses our public lands, lakes, rivers and trails; each of us harvests the benefits of timber and wildlife in our own ways. It is how we individually and collectively behave as stewards that best protects and manages Wisconsin's natural resources. The DNR really manages only a small portion of Wisconsin's natural resources as forests, parks and waterways. We primarily serve as a source of expert information and education to guide and encourage proper behaviors by all of our stakeholders so that our resources are here for each other and the generations that follow us.



Wisconsin's Natural Resources —the Big Picture

This section of the report provides some basic information on Wisconsin, to set the foundation for who we are, how our natural resources provide for us and how and why we might impact our natural resources.

Population Trends

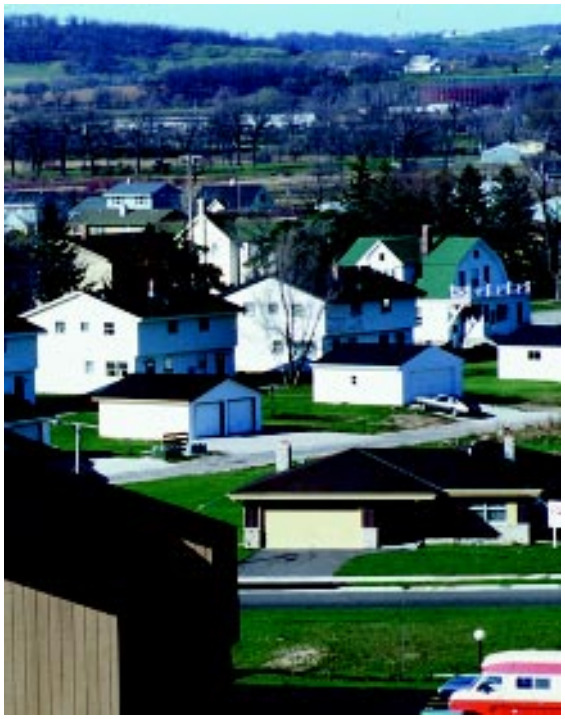
The number of people who live in Wisconsin has an effect on our natural resources. From 1990 through 1998, Wisconsin's population has grown by more than 300,000 people, or about 6.5 percent. Wisconsin ranks 39th out of the 50 states in the rate of population change. In terms of managing natural resources, Wisconsin's reasonable rate of population growth would indicate that we have fewer and slower population

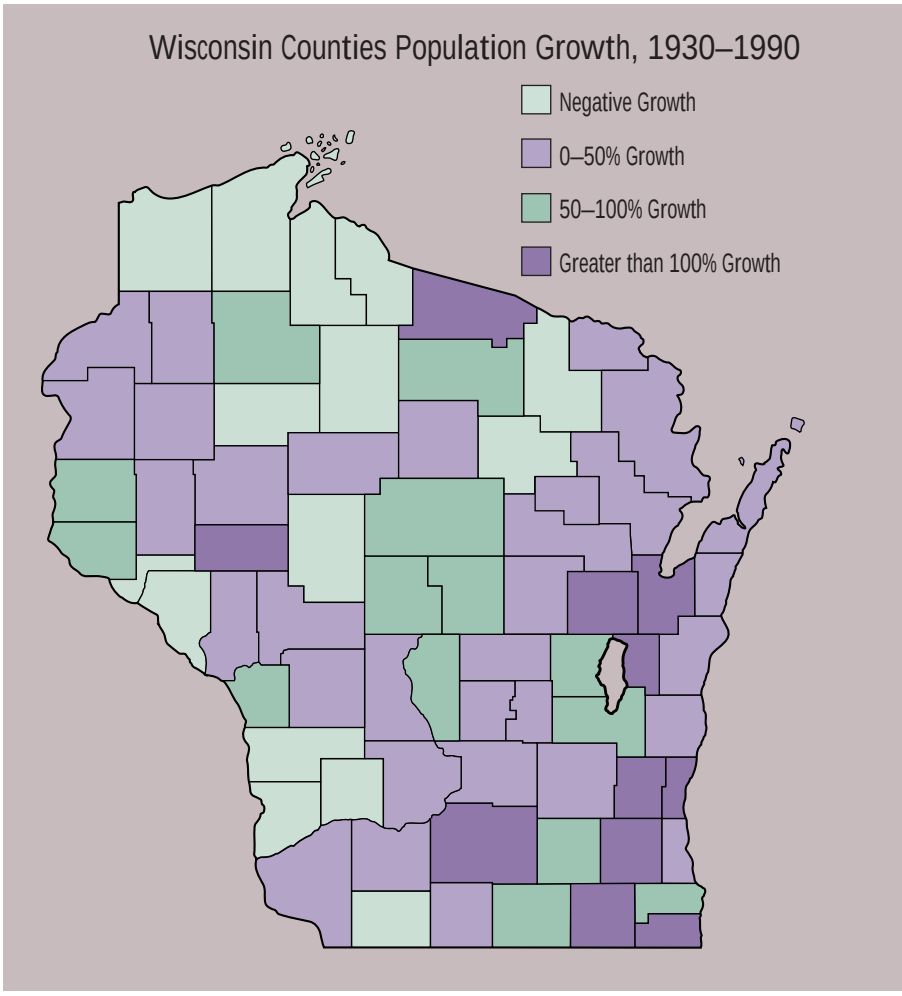
problems to deal with compared to the majority of the states.

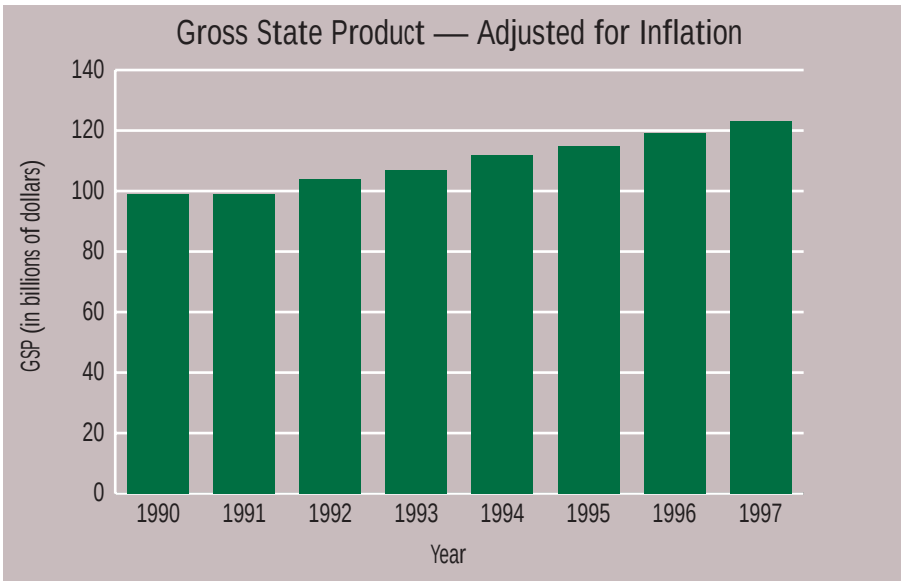
In spite of having a reasonable growth rate, we still experience problems with where growth occurs. For example, much of Wisconsin's population growth has been in suburban areas, which may lead to sprawl and farmland being converted to housing. Sprawl can have significant impacts in terms of protecting our natural resources — increased demands for transportation infrastructure, fragmentation of wildlife habitat, demands for water supply and wastewater disposal — that ultimately affect our overall quality of life.

Population Trends in Our Counties

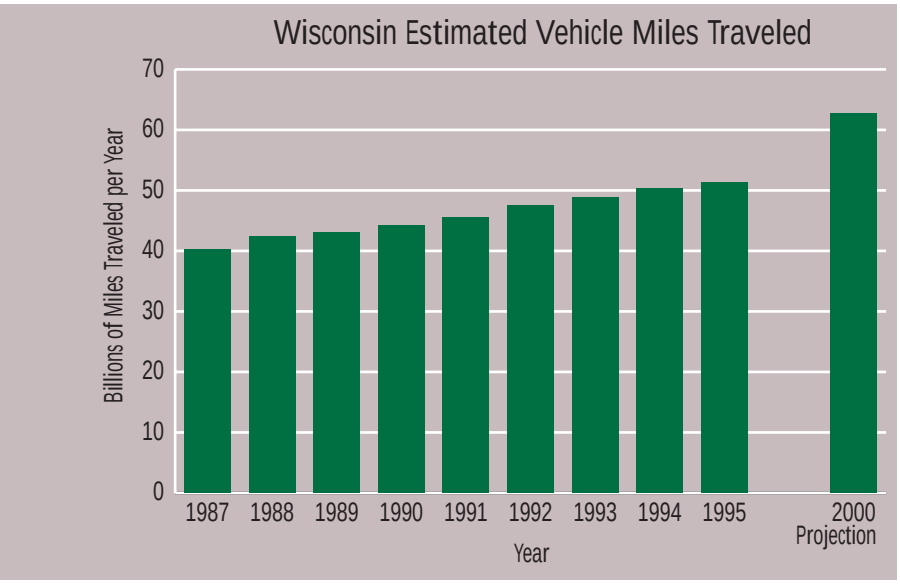
The accompanying graphic illustrates the population changes in Wisconsin's counties from 1930 to 1990. The higher growth rates in the Fox River Valley and southern and southeast Wisconsin demonstrate the rural-to-suburban shift in our population. The population growth in portions of Wisconsin increases the demand for public environmental services, such as water and wastewater treatment, and for land to accommodate transportation, housing and businesses. These demands place pressure on our natural resources that we need to consider to insure our children have a healthy future.

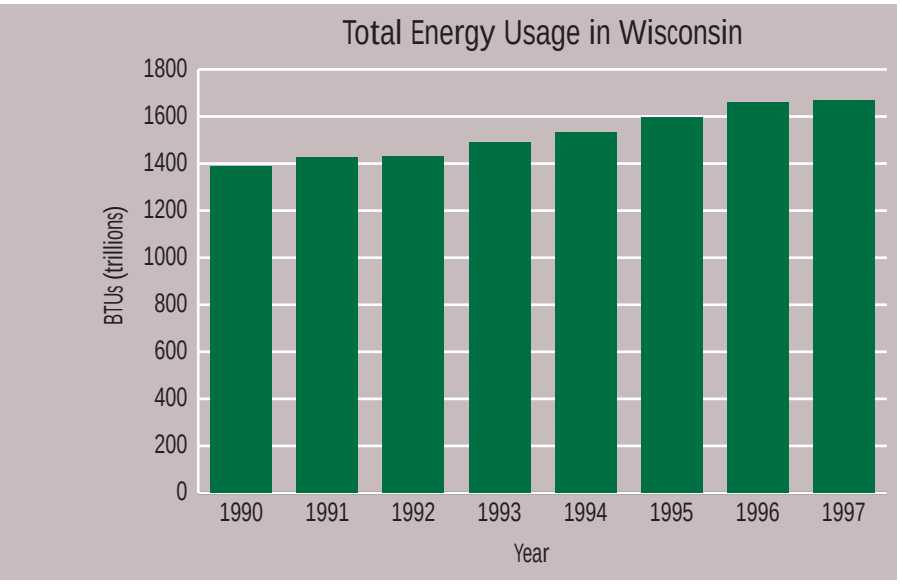






Urban sprawl (left), photo by Dean Tvedt





Gross State Product

Wisconsin's economy, along with the national economy, has been growing over the past several years. From 1990 through 1997, Wisconsin's gross state product grew by 24 percent (adjusted for inflation). Over the same period, Wisconsin's population grew by only 6.1 percent; therefore our economy has been growing faster than our population.

Energy Trends

The accompanying graphic shows trends in Wisconsin's energy consumption over the period of 1990 through 1997. Over that period, total energy consumption grew by a little over 20 percent, which is less than the growth in gross state product, but more than Wisconsin's population growth. Energy usage in Wisconsin is an indicator of our efficiency. Since gross state product is growing faster than our energy usage, this indicates that Wisconsin may be becoming more efficient as it grows. However, the DNR continues its vigilance on air emissions; as we grow we also should maintain and improve our air quality.

Vehicle Miles Traveled

The number of vehicle miles traveled, or VMT, is another important indicator in regard to natural resources issues. Changes in the VMT can indicate trends of energy usage, possible air emissions (we also have to consider changes in engine emission technology that might lower future vehicle auto emissions), and land use. For example, as the number of vehicle miles traveled increase, presumably so does the demand for roads. The demand for roads influences land use decisions because a piece of highway cannot be used for farms, homes or businesses.

CHAPTER TWO

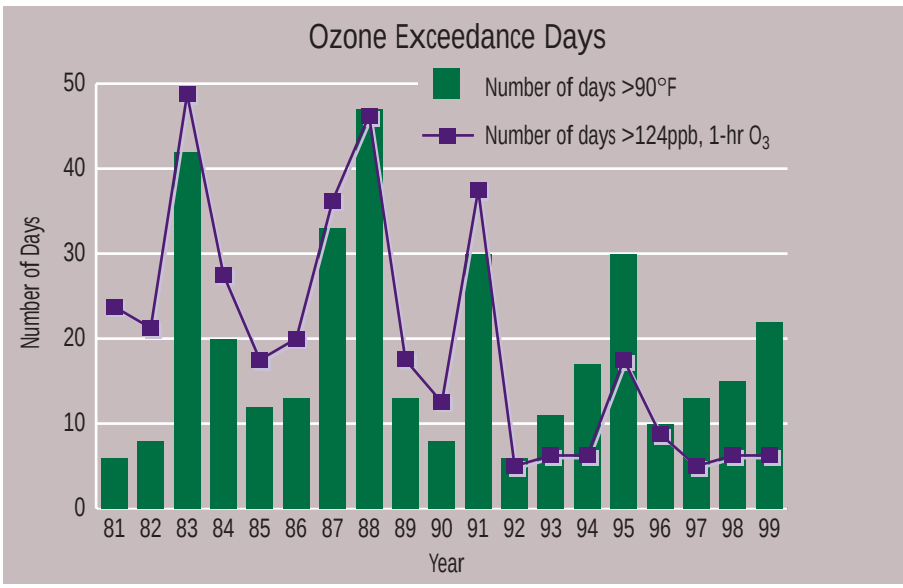
Protecting Public Health & Safety

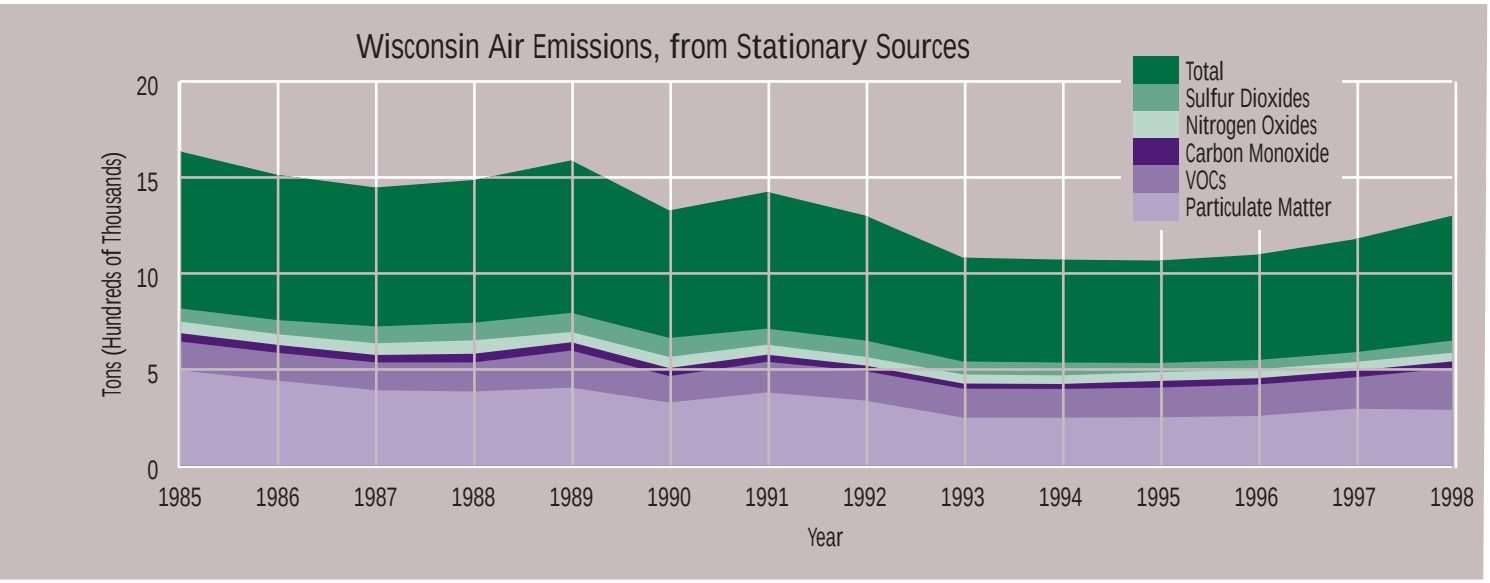
Our lands, surface waters, groundwater and air are safe for humans and other living things that depend upon them. People are protected by natural resources laws in their livelihoods and recreation.

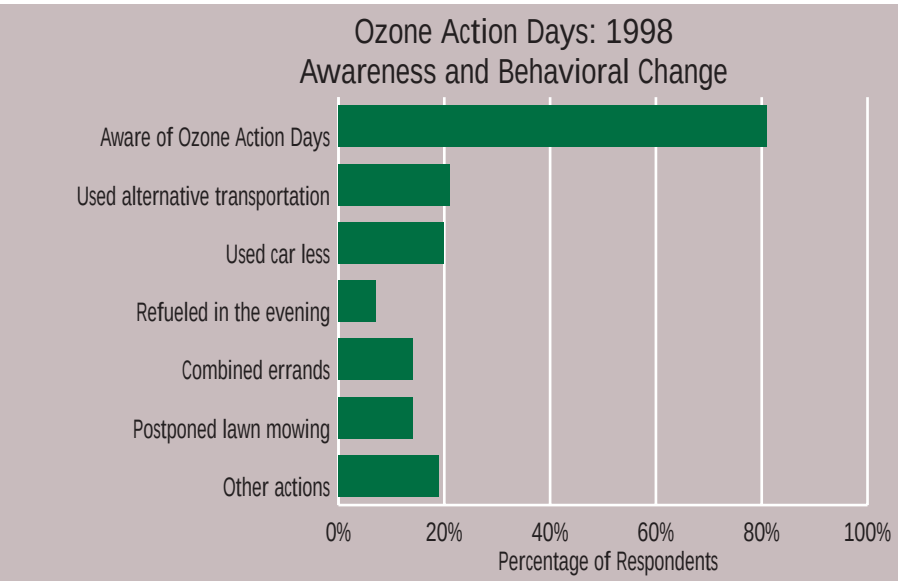
Air Quality

Wisconsin's air has become considerably cleaner in the last 30 years as businesses, automakers, and other sources of air emissions have met stricter standards. The majority of citizens and visitors in the Badger State breathe clean, healthy air that meets federal health standards set by the U.S. Environmental Protection Agency (EPA) for sulfur dioxide, carbon monoxide, lead, dust and soot. However, there are a few days each year in southeastern Wisconsin in which ground-level ozone concentrations rise to unhealthy levels that make breathing difficult for young children, the elderly, and the growing number of people with asthma and other respiratory conditions. Ozone forms near the earth's surface when emissions from cars, factories, utilities, lawnmowers — and myriad other daily activities — react on hot, humid, sunny days.

Changes in our driving habits will become more important as Wisconsin and other states try to meet stricter ozone standards. Although automakers have significantly reduced emissions from cars, as a society, we may offset those gains as we drive more vehicles, larger vehicles that require more gas, and by driving our cars more miles.







LAKE MICHIGAN OZONE ACTION!

Rather than try to require people to car pool or ride the bus, the DNR has worked with private and public sector partners to help reduce ozone concentrations on those hot, sticky days when conditions are ripe for unhealthy ozone levels. More than 240 southeastern Wisconsin businesses, community organizations and municipalities have joined Wisconsin Partners for Clean Air, a program in which partners voluntarily take steps to reduce ozone-forming emissions: an industry may shut down a manufacturing production line that releases ozone-forming emissions; a business may encourage employees to car-pool; and residents may delay refueling their car or mowing their lawns until later in the day.

A 1998 survey shows that these efforts to encourage voluntary action are making a difference. People are changing their behaviors.

The combined effects of such voluntary actions with the use of reformulated gasoline, installation of vapor recovery systems at gas stations, the vehicle inspection and maintenance program, and changing industrial processes, have helped reduce the number of days ozone reached unhealthy levels from an average of 14 days each year in the 1980s to 3.8 days per year most recently.

Air quality in Wisconsin has steadily improved over the last three decades. The trends that we see in our air quality emissions data show the tremendous value of government and its partners working together to clean up the air. These air quality improvements are occurring in the face of population and economic growth. Emissions of sulfur dioxide, carbon monoxide, particulate matter, ozone precursors (volatile organic compounds and nitrogen oxides), are lower than in the mid-1980s.

DNR records show that most Wisconsin businesses and municipalities are doing a good job of complying with state laws to protect air quality. In 1999, the DNR performed more than 1,500 on-site inspections, reviews, and investigations of which 96 percent found the business was in compliance with state air quality laws.

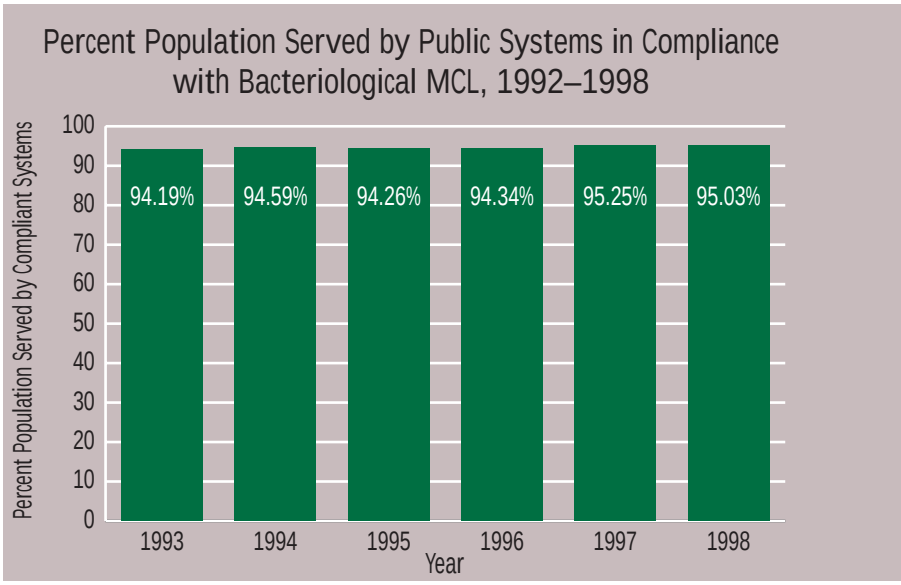
Safe Drinking Water

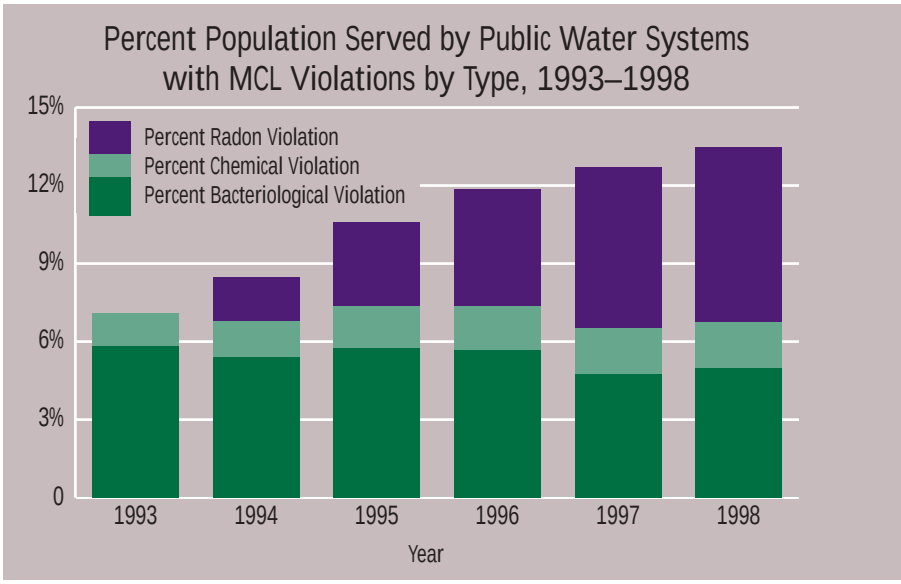
Sometimes we Americans take for granted how important it is to have clean water. The lack of clean water is one of the leading causes of poor health in developing countries. With 2 quadrillion gallons of water in aquifers underlying the state, it's no wonder that our groundwater supply is often referred to as "Wisconsin's buried treasure."

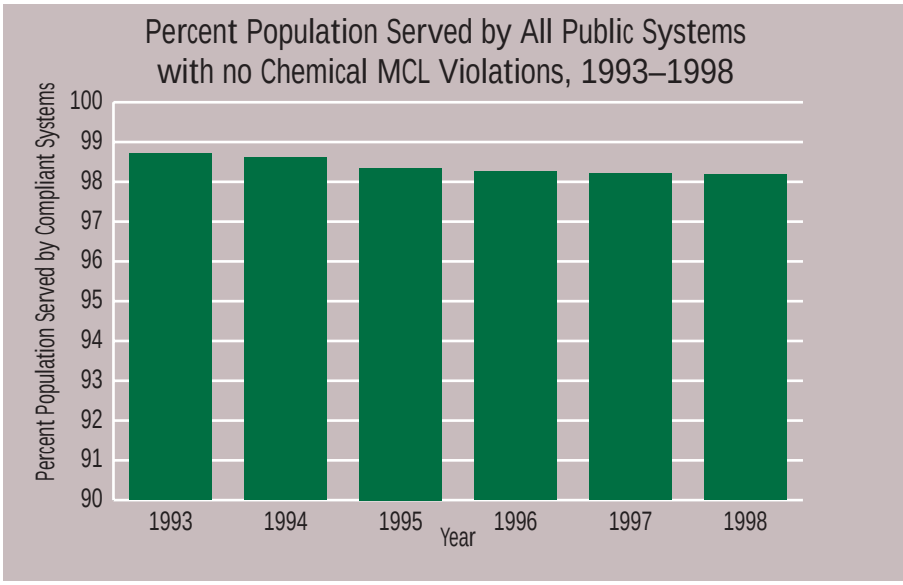
These aquifers supply drinking water to 75 percent of the state's population, to residents in communities with public water systems, and to property owners, schools, restaurants and others with 750,000 private water wells. The other 25 percent of Wisconsin residents are served by public water supply systems that draw their water from lakes Michigan and Winnebago.

Passage of the Safe Drinking Water Act 25 years ago opened a new era in testing water supplies to ensure that glass of water you draw from the tap is safe. EPA now requires operators of public water supply systems to monitor their water to make sure it does not exceed the Maximum Contamination Level (MCL) for 80 microbial and chemical contaminants.

In addition, the Safe Drinking Water Act mandates that public water systems be monitored for about 50 organic chemicals for which there are not now drinking standards. This extra monitoring allows the state and federal governments to identify new contaminants for possible regulation and to develop treatment and







DNR staff engaged in a Creel count to learn about fishing quality and success in a water body

The best source of information on your drinking water quality is your local water utility. Starting in 1999, public water utilities are required to prepare and distribute annual drinking water quality reports. Check with your local utility if you would like to receive a copy.

prevention strategies to protect drinking water supplies.

Most Wisconsin citizens receive their water from compliant water systems. Just six percent of the water utilities had violations in 1998, and many of these violations were for paperwork problems, rather than for contaminants in the water.

When a public water system violates a drinking water standard, it must notify the public of the violation, identify the source of the problem, take corrective action if necessary and do follow-up sampling.

The percentage of Wisconsin's population served by public water systems with no violations for biological and chemical contaminants has remained steady and in the high to mid-90 percent range. But violations of standards for elements that emit radiation — contaminants known as radionuclides — are increasing. This is largely because EPA and Wisconsin are not requiring systems to take corrective actions until federal standards for the maximum allowable levels of such contaminants are finalized. In Wisconsin, these contaminants, such as uranium, radium and radon, occur naturally when soils and rocks dissolve into groundwater.

Owners of Wisconsin's private water wells are required to conduct testing to assure that contaminants do not exceed allowable health standards. But about 10 percent of the private well samples analyzed most recently for nitrate in rural areas show groundwater contamination above the state groundwater standard — infants under six months and pregnant women should not drink water with nitrate levels above 10 parts per million.

Groundwater is plentiful in Wisconsin, but concern is growing about its limits and its susceptibility to contamination. Natural shortages of groundwater have occurred due to weather conditions and geologic setting. Human activities also cause quantity problems. A dripping faucet, for example, can waste 20 or more gallons of water each day. Groundwater withdrawal in the Lower Fox River Valley, southeastern Wisconsin and Dane County has caused substantial declines in groundwater levels.

Pollution also has limited groundwater use in several areas where industrial and agricultural pollutants are present in aquifers of the state. The sand and gravel aquifer covering most of the state except for parts of southwest Wisconsin is highly susceptible to pollutants. Urban activities that pose significant threats to groundwater quality include industrial and municipal waste disposal, road salting, and storing petroleum products and other hazardous materials. In rural areas, animal waste, septic systems, fertilizers and pesticides are the primary pollution sources to groundwater.

Surface Water—Lakes and Rivers

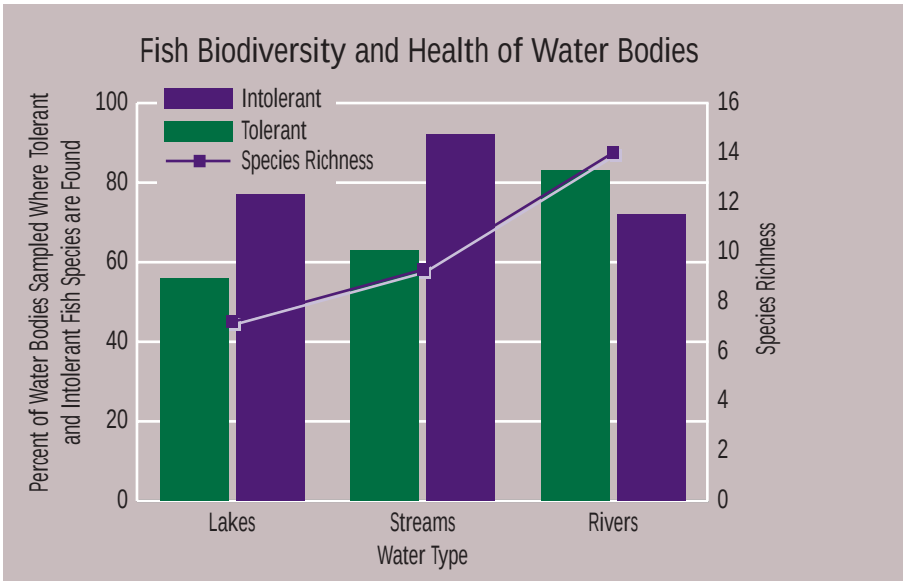
The name Wisconsin comes from a Native American word for "gathering of the waters." What an appropriate name for the state, which is home to:

- 2,444 trout streams and 5,002 warm-water steams
- 44,000 miles of rivers and streams combined
- 15,057 inland lakes
- 5,385,290 acres of wetlands
- 840 miles of Great Lakes shoreline

The sheer number of lakes and rivers in Wisconsin outstrips the state's ability to test the quality of every water body, so we focus our monitoring efforts on those lakes and rivers where there has been an historic water quality problem or where the waters are more vulnerable to pollution for a variety of reasons. Data indicate that Wisconsin has generally healthy water, but that some specific lakes and rivers

fail to meet standards that allow people to safely swim and eat the fish they catch from those waters, and that other waters are being degraded.

The presence of fish species that need clean water to survive (smallmouth bass, rock bass, brook trout) and the number of fish species (richness) can be used to assess the health of many of the state's waters. Data collected from the Wisconsin Fish Distribution Study at 7,500 stations on different water types indicate that Wisconsin's waters are generally healthy. Environmentally sensitive species, for example, were found at 83 percent of sampled stations in rivers, 63 percent in streams, and 56 percent in lakes. These species would rarely occur in degraded waters.



Impaired Waters

In April 1998, of 44,000 miles of Wisconsin's rivers and streams, and over 15,000 inland lakes, the DNR identified and submitted to EPA a list of 554 lakes and river segments that were not meeting water quality standards for one or more of the following factors: degradation from polluted runoff; degradation from factory and wastewater treatment discharges; degraded habitat; or, because fish taken contain elevated levels of mercury or contaminants.

The list is intended to highlight waters that deserve attention because they need water quality improvement and protection. Having a comprehensive list better enables the DNR to work with the public and partnership teams to set priorities for using limited program resources. Federal regulations require that the state review and revise this list of impaired waters every two years.

Polluted runoff

Polluted runoff from farms, cities, construction sites and other areas is now one of the greatest threats to Wisconsin's water quality, degrading or threatening about 40 percent of our streams by miles and about 75 percent of our inland lakes by surface area. It also threatens many of the Great Lakes harbors and coastal waters. Such polluted runoff — known as nonpoint source pollution because it comes from many diffuse sources rather than from a single, identifiable "point" source such as a smokestack or effluent pipe — harms Wisconsin lakes in many ways. It can reduce the levels of dissolved oxygen that fish and other aquatic life need to live, cause algae growth, cover fish spawning habitat with sediment, and even kill fish.

DNR and the state Department of Agriculture, Trade and Consumer Protection (DATCP) have had voluntary programs in place since the late 1970s to address such polluted runoff. In 1999, the departments, with legislative authorization, for the first time wrote rules that will require farmers and small cities to control such runoff. The proposed changes also would set standards that municipalities, real estate developers and others have to meet to control runoff from construction sites and more. In 2000, the DNR and DATCP will conduct public hearings on these standards and restructuring of the state's non-point source program.

Willow Flowage

Environmental contaminants

The majority of waters tested in Wisconsin do not contain contaminants such as mercury or PCBs at levels that pose a health risk to humans who regularly eat fish caught from those waters. But Wisconsin's state fish consumption advisory currently lists 370 lakes and river sections where fish contain contaminants at a level of concern. The state usually adds about 10 to 12 new sites each year. These additions are the result of the state's continued monitoring of new sites and does not reflect an increase in pollution.

Levels of PCBs and mercury, the two most common contaminants found in Wisconsin fish, have remained fairly steady over the past decade. While the commercial and industrial use of PCBs was banned in 1976, and releases to the environment have significantly declined, they are still found in large concentrations in sediments in the Great Lakes, their tributaries and the Mississippi River. Mercury is naturally occurring in low levels, but the primary source of additional mercury in Wisconsin waters is air pollution from coal combustion. It is estimated that about one additional cancer case may develop in 10,000 people who eat the Wisconsin fish they catch and follow the Wisconsin fish advisory over their lifetime.

Photo by Jean Meyer

Degraded Habitat

DNR research is showing that degradation of near-shore and shoreline habitat is increasing. This can harm water quality and critical habitat for fish, birds, and plants that live along the waterfront. Since the 1960s, two-thirds of the larger, previously undeveloped lakes in Wisconsin's Northwoods have been developed and the average number of homes on privately owned shorelands has more than doubled. In addition, the number of permits for seawalls has tripled, and the number of permits for piers, near-shore ponds, and other structures has swelled to 10,000 a year. For example, DNR researchers who looked at native plant and animal populations along northern Wisconsin lakes found that undeveloped lakes averaged one frog per 126 feet of lakeshore, compared to one frog per 220 feet for developed lakes and one frog per 470 feet on very densely developed lakes.

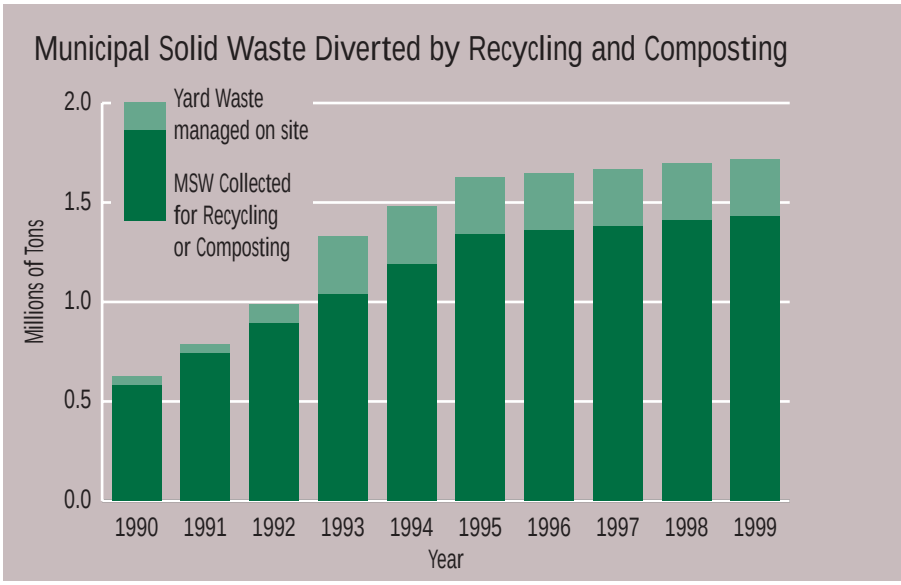
They also found dramatic differences in plant cover: shrubs covered 64 percent of the shoreland at undeveloped lakes and 16 percent at developed lakes; trees with leafy canopies covered 35 percent of the shoreland at undeveloped lakes versus 22 percent at developed lakes. Many of the birds the researchers counted at the developed lakes were species such as robins, goldfinches, grackles, brown-headed cowbirds and mourning doves — birds that prefer human-dominated habitats. Conversely, most birds at undeveloped lakes were species such as thrushes, warblers, and other migrating birds.

To better protect against such harmful effects from development along the shorelines, many counties are now enacting more protective standards than the state minimums for lot sizes, setbacks for structures from the water's edge, and buffer zones next to the water. In addition, the DNR, through its Northern Initiative efforts with local governments, citizens and organizations in the Northwoods, is using education, incentive, and acquisition programs to help assure that shorelands are protected.

Wastewater degradation

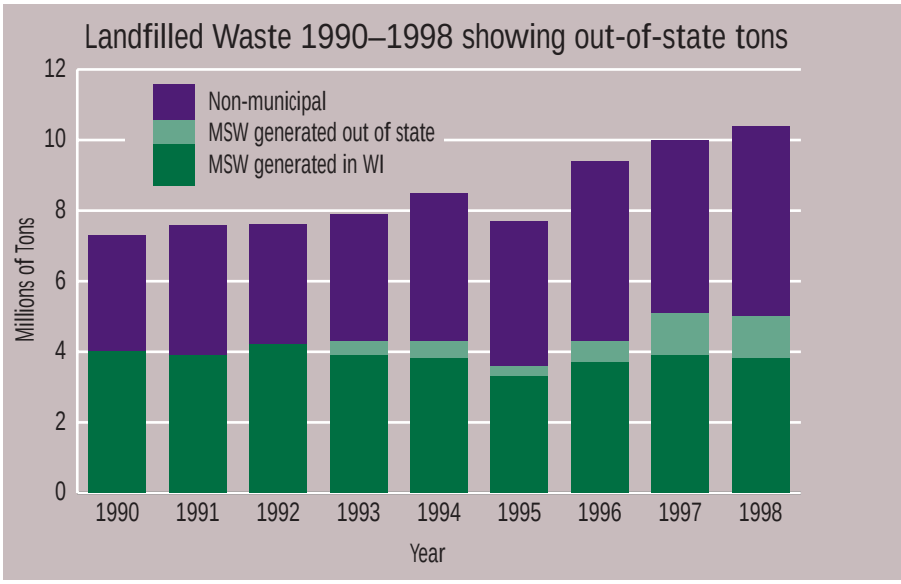
DNR records indicate that Wisconsin businesses and municipalities are doing a very good

job of meeting current state laws governing the wastewater they discharge to rivers and lakes. In 1999, 97 percent of the DNR's 7,272 reviews of entities with regulated discharges to lakes and rivers complied with state laws regarding those discharges. And Wisconsin operations received more awards than any other state for outstanding wastewater operations and maintenance. The Water Environmental Federation and EPA jointly gave the awards to the Milwaukee Metropolitan Sewerage District for its beneficial use of byproducts of wastewater treatment; Appleton received a first place national award for its massive and difficult treatment plant upgrade project in 1993; and Elk Mound received a first place national award for a small advanced wastewater treatment facility.



Solid Waste Disposal

The total amount of solid waste sent to Wisconsin landfills in 1999 continued to grow, in part reflecting a booming economy in which commercial and industrial operations are producing more goods and services and generating more waste. It also reflects the importance of a growing amount of municipal solid waste (MSW) from other states, which now constitutes about 20 percent of the municipal solid waste disposed here. Wisconsin's solid waste disposal industry has about five years' worth of municipal solid waste landfill disposal capacity available, a level it has maintained over the last decade.



Recycling

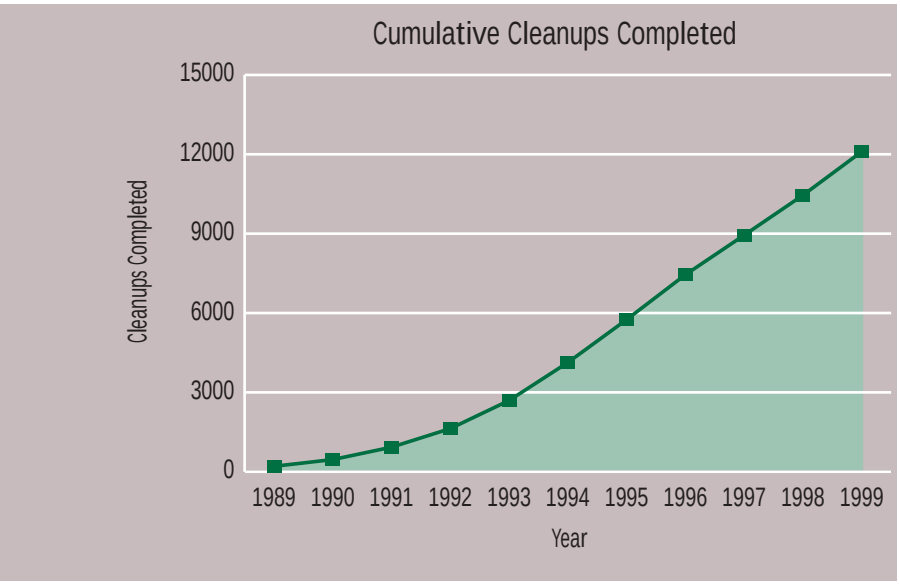
Wisconsin citizens and businesses are among the best recyclers in the nation. A 1998 survey showed that 97 percent of households recycle. As a result, the state has one of the highest recycling rates in the country — approximately 36 percent of the waste generated by households and commercial facilities is recycled or composted, compared to a national average of 28% in 1997. Including recycling and backyard composting of yard waste, Wisconsin is diverting from landfills about 40 percent of the wastes our residents and commercial establishments generate. (The waste recycled/composted chart and the waste landfilled chart are not directly comparable due to different measurement methods.)

From 1990 to 1998, recycling saved the equivalent of five average-sized landfills or expansions. Additionally, an analysis of the energy and pollutant savings from Wisconsin's recycling efforts suggests that each year we:

- save enough energy to provide 302,000 households with all electrical, heating and cooling needs;
- produce 146,000 fewer tons of industrial waste that would otherwise go to landfills;

- reduce greenhouse gas emissions (as expressed in carbon equivalents) by almost 32,000 tons;
- decrease pollutants that contribute to ozone by 12,500 tons;
- decrease pollutants that cause acid rain by 25,000 tons; and,
- keep 2,400 tons of dissolved solids and 32 tons of nutrients out of rivers and streams.

The savings from decreased air emissions due to solid waste recycling is the equivalent of the amount produced by over 2,000,000 cars.



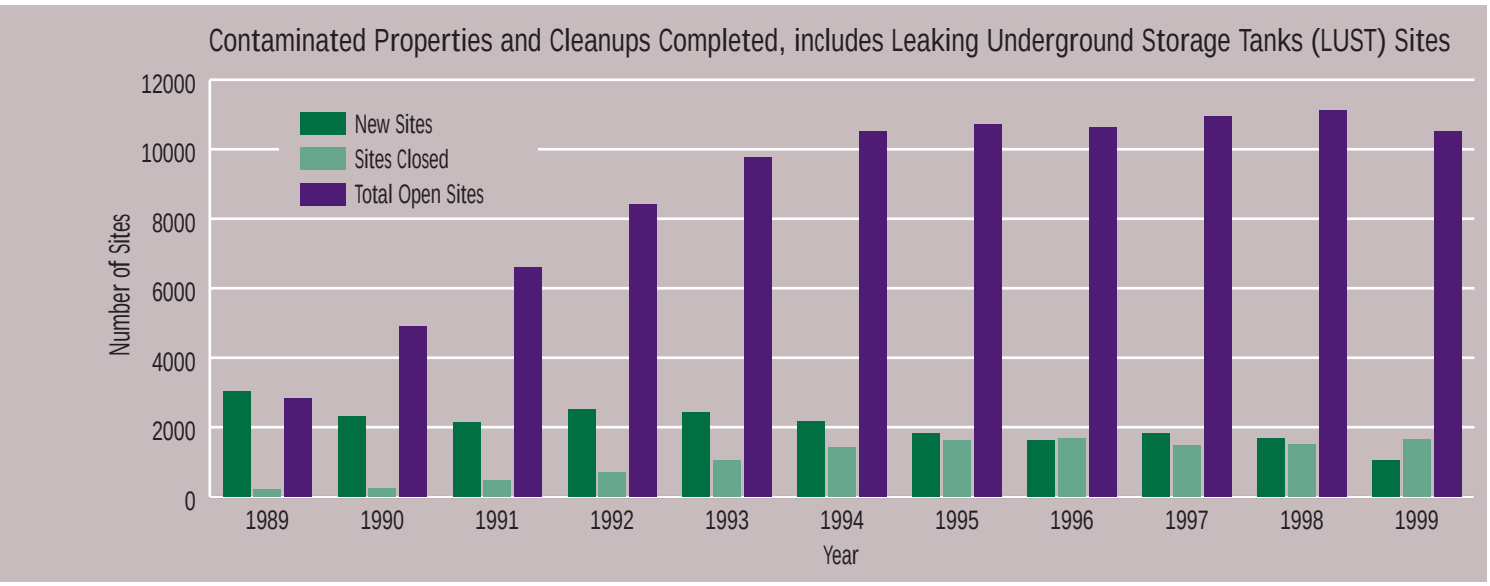
In 1999, over 96 percent of inspected solid waste operations were in compliance with Wisconsin's solid waste regulations, and over 99 percent of recyclers were in compliance.

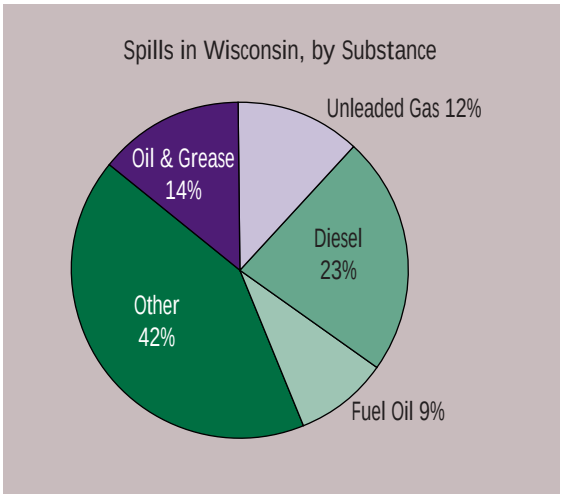
In the late 1990s, the department successfully completed a 10-year effort to clean up 15 million waste tires that had accumulated at 640 sites around Wisconsin. Today, waste tires have developed into a reuse market where burning processed tires helps provide energy to Wisconsin citizens.

Cleanups

Contaminated properties often occur where industrial or commercial activities have released chemicals. Wisconsin law requires owners to report this contamination to DNR and to restore the site. The most serious long-term clean up projects occur when contamination has moved through the soil and has contaminated groundwater. As of 1999, nearly 70 percent of the remaining cleanup sites in Wisconsin were those created when old underground petroleum storage tanks leaked. All of those older tanks were to have been removed or upgraded by Dec. 31, 1998.

The accompanying graphic illustrates that Wisconsin is now finding fewer sites each year with contamination and closing (cleaning them up) more of these sites, so that there is a declining number of sites that continue to need our attention (open sites). New sites prior to and including 1989 are included in the 1989 figure.





Spills

There are about 1,200 spills into Wisconsin's environment reported annually, with one-third occurring in the more heavily populated southeastern part of Wisconsin and fewer in less populated rural areas. Prompt cleanup of hazardous substance spills reduces danger to public safety and prevents spill sites from becoming contaminated properties. Most spills in Wisconsin are small. While quantity can be important, the substance spilled and where it is spilled are generally more critical factors. The most common substances spilled are petroleum products.

Hazardous substance spills can pose a danger to public safety, and if they're not quickly cleaned up, may contaminate the property where they were spilled. Historically, about 20 percent of spills have been contained within a building or a dike and not released to soil or water. About two-thirds of the total spills are released to soil, surface water or groundwater where the potential harm depends on the substance released. Where a spill occurs affects the seriousness of the spill. Nearly 45 percent of all spills in Wisconsin impact the soil. Excavating the contaminated soil and refilling with clean soil usually cleans up these spills. When a spill impacts surface water or groundwater, it presents a greater risk and requires a more intensive response.

Land Recycling (Brownfields)

There has been a major state effort in recent years to clean up contaminated lands called brownfields, where real or perceived contamination has caused property to become abandoned or under-used. Putting these brownfields back into productive use returns them to the tax base, brings jobs to populated areas, and helps conserve other land for farming, recreational areas and green space. And redeveloped sites use existing roads and utilities.

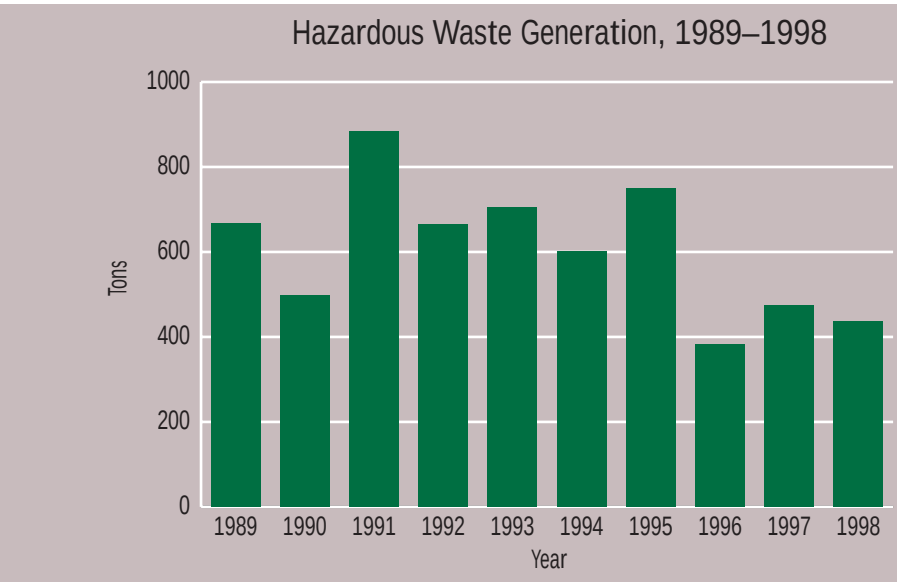
DNR advises property buyers and sellers, local governments, lenders and developers about legal and technical options that not only get the cleanup done, but help ensure that development does not hopscotch around these brownfields. The Legislature has given DNR new tools to do this, among them a "certificate of completion," which a property owner may obtain when a DNR-monitored cleanup is completed. The certificate removes the owner's environmental liability for the contamination that was cleaned up.

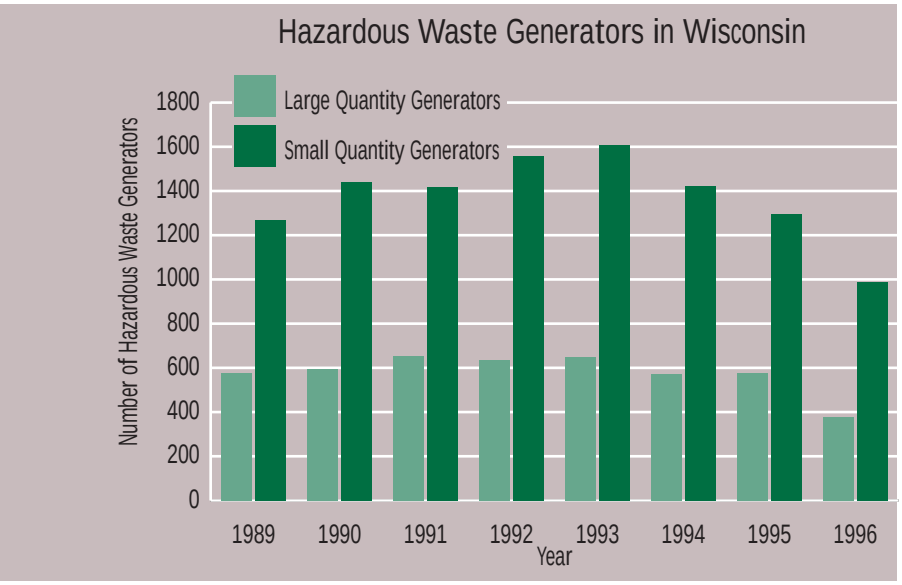
Harborpark Development Project — Kenosha

After 100 years of industrial use, this 60-acre property on Lake Michigan has undergone extensive restoration and cleanup, through the cooperation of DaimlerChrysler Corporation (the former owner), the City of Kenosha and the DNR. Kenosha received financial and technical assistance from the EPA, DNR and the Departments of Commerce and Transportation to complete the cleanup and prepare the property for redevelopment. Kenosha's plan for this property includes housing, commercial use and public spaces; protects the environment; enhances the lakeshore; and, encourages economic development on lands that have already been dedicated to this purpose.

Hazardous waste

Fewer businesses are generating hazardous waste and those that do are generating less of it. Both the number of operations generating more than 2,200 pounds a month (large quantity generators) and those generating a smaller quantity are declining. DNR records show those generating waste are doing a good job of meet-





ing state laws governing the generating and handling of hazardous waste: DNR reviews, inspections and investigations found compliance in 94 percent of the cases.

Toxic Releases

Another area where the DNR collects information is on the release — to air, land and water — of toxic materials to the environment. This program is known as the Toxic Release Inventory or TRI. The DNR does not regulate these releases as a program separate from its air, wastewater and hazardous waste programs, but it does collect and compile this information to support environmental awareness and decisions. Wisconsin's businesses and institutions have done a marvelous job over the last decade in reducing their toxic releases to about half of their previous levels!

Recreation safety

Thirty years ago, about 250 hunters a year were being injured in hunting accidents and about 20 hunters killed. Hunting safety education classes, which were offered by the DNR starting in 1967 and made mandatory in 1985 for anyone who was born on or after Jan. 1, 1973 have helped to dramatically make hunters more safe in the field.

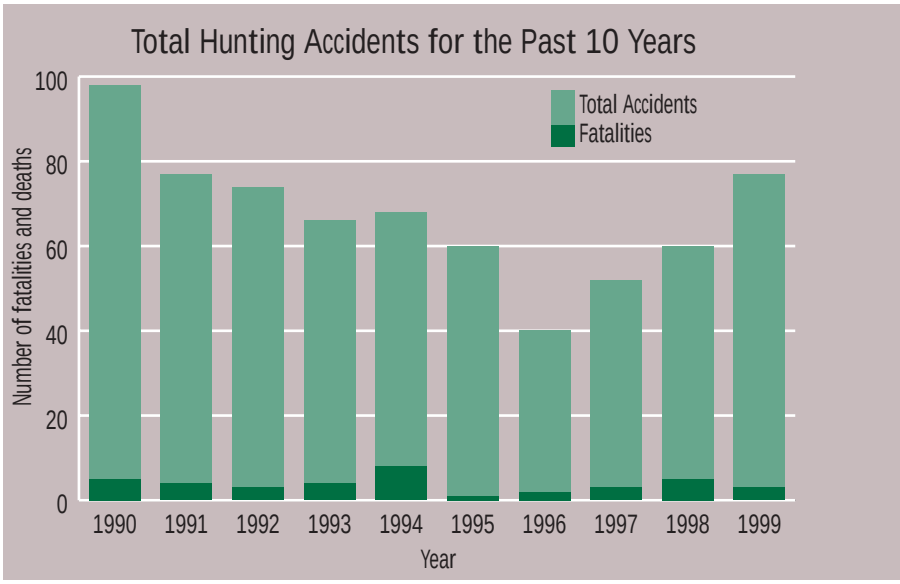
A corps of 4,000 volunteer teachers, which the DNR's conservation wardens administer and for which they provide the curriculum, has al-

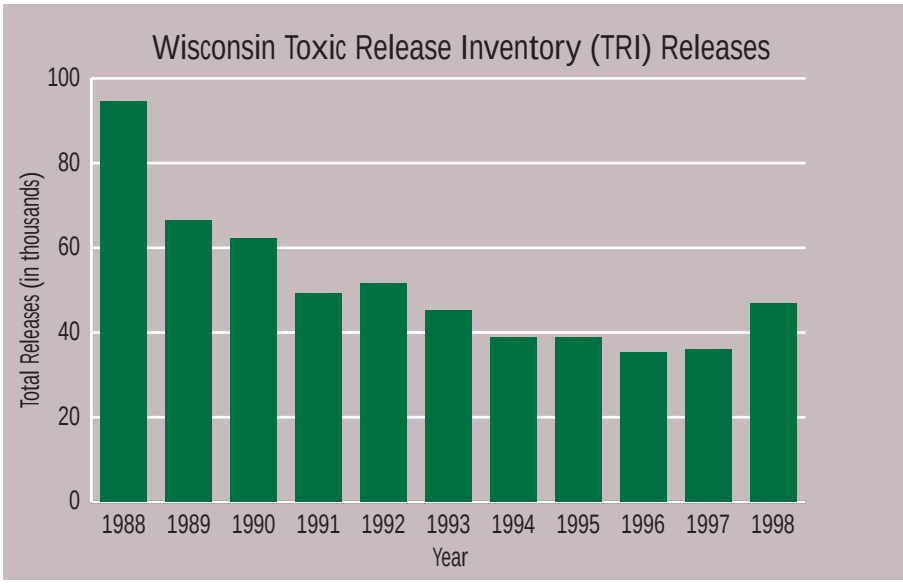
lowed the accident rates to drop tremendously even as the number of hunters has swelled to about one million.

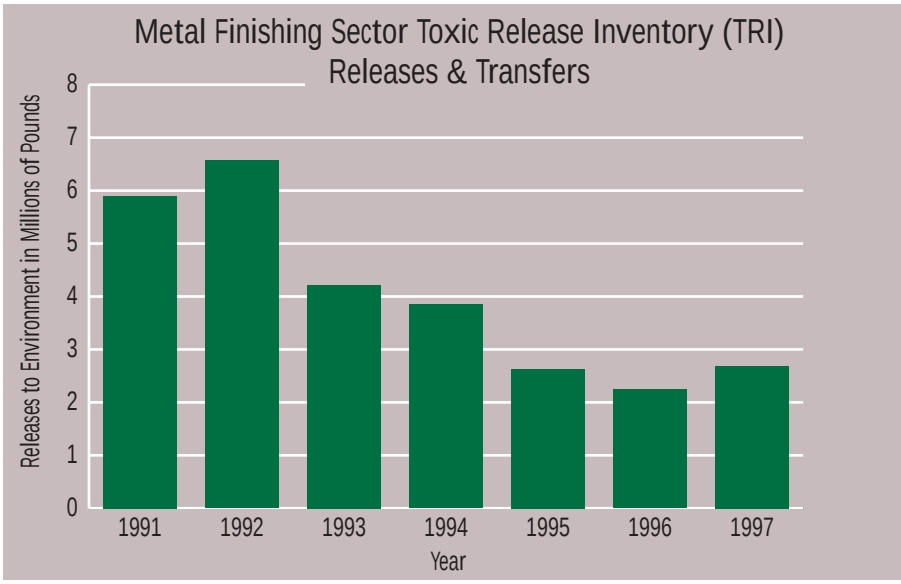
Hunter safety education was the only mandatory recreational safety course in 1999, but snowmobile safety becomes mandatory in 2001 for people born on or after Jan. 1, 1985. The DNR also offers safety education courses for all-terrain vehicles and boating. The total number of snowmobilers killed on Wisconsin trails is increasing and boat fatalities on Wisconsin waters are declining; but the rate of accidents is declining as greater numbers of Wisconsin residents and visitors pursue those recreations.

Forest Fire Protection

Fire can be both an important management tool as well as a threat to forests, people, and property. DNR Forestry staff are partners with trained firefighters from local fire departments to act quickly to control forest fires that threaten lives and property. Our 1999 data show that DNR helped suppress more than 1,600 forest fires statewide. Volunteer fire departments assisted DNR in about 1,200 of those fires. More than half of the 1999 fires were suppressed before burning over one quarter acre, and less than one percent burned more than 100 acres. This is testimony to the readiness and dedication of state and local firefighting personnel and programs. Volunteer fire departments fill an important role by providing suppression assistance during the early minutes of a forest fire's life. These local firefighters also take the lead role in protecting buildings when they are threatened by forest fires. The DNR's proactive forest fire education program helps keep the number of accidental fires down by helping people to understand how carelessness can start them.



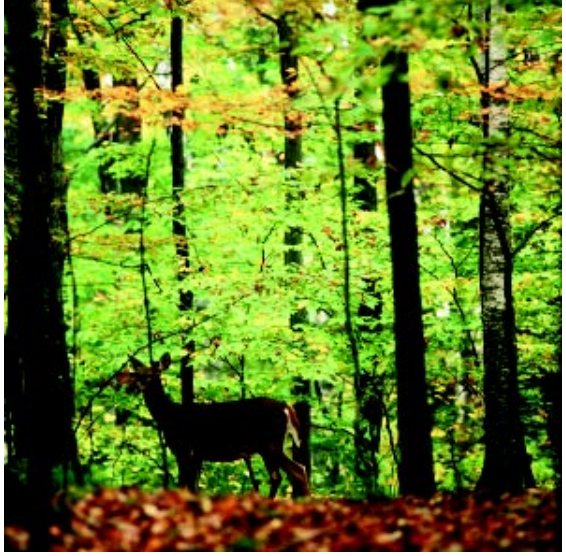




Wisconsin's metal finishing (surface prepping, coating, plating, etc.) industries have worked hard in recent years to reduce their toxic releases to the air, water, and land. The industry is assessing the opportunities for better managing their processes and products, and reducing pollution.

CHAPTER THREE

Sustaining Ecosystems



The state's ecosystems are balanced and diverse. They are protected, managed and used through sound decisions that reflect long-term considerations for a healthy environment and a sustainable economy.

What does the DNR mean by sustaining ecosystems? *Sustaining* basically means that we, as a society, are using our various resources in a manner that provides for today's human and environmental needs, while respecting the needs of tomorrow's inhabitants. Will there be enough habitat? Will the air and water be clean enough to support diverse forms of life that make up our world? *Ecosystems* are the collections of plants, animals, soil and rock, and air and weather that combine to create this amazing web of life that provides all of us our sustenance and homes.

Aldo Leopold, DNR files

Aldo Leopold called for such an approach more than 50 years ago in *A Sand County Almanac* when he described the need for a "land ethic" to guide people's relation to land and the plants and animals that grow upon it. "All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in the community, but his ethics prompt him also to cooperate," Leopold writes. "The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively: the land."

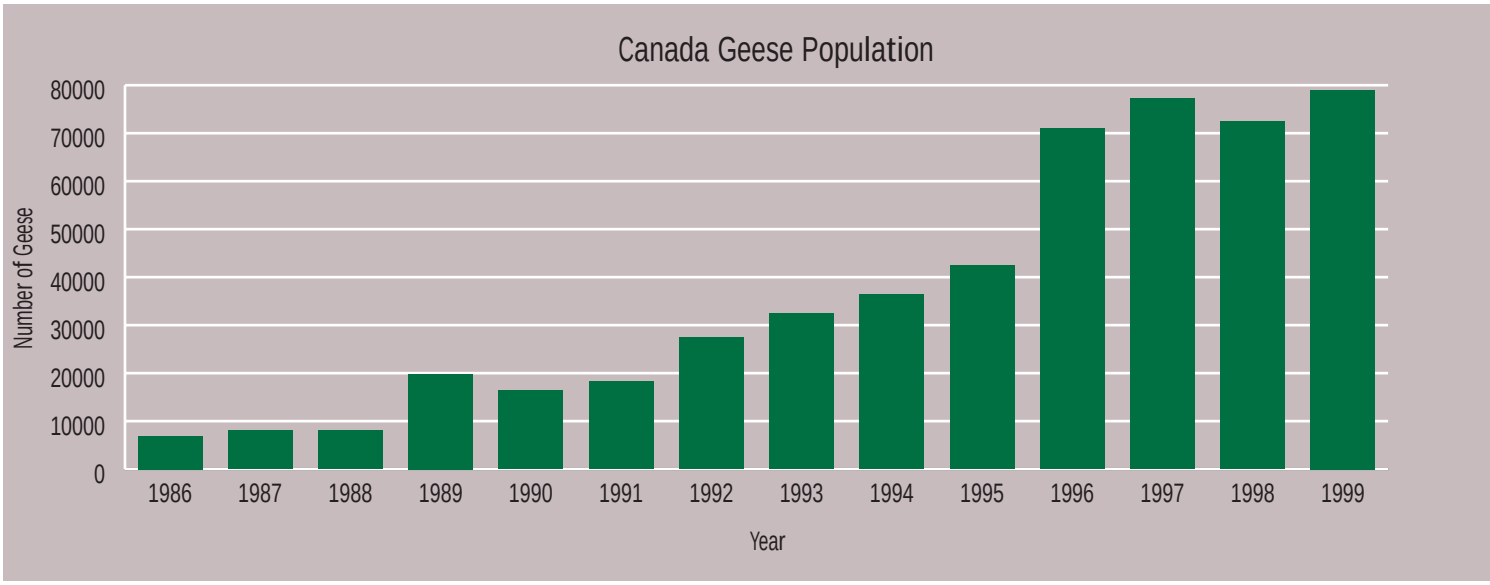
Wildlife

Three natural frontiers of the North American landscape merge here: the boreal forest extends from the north, the great hardwood forest advances from the east, and dry grasslands sweep in from the west. The mix of forest, grassland, prairie, wetland, lake and barren, coulee and farmland provides lots of habitat for a variety of animals and plants. Some species are hunted while others move in or out of Wisconsin as the landscape changes. This is a period of remarkable abundance for some of Wisconsin's wildlife species, and a period requiring our utmost attention for others. A sampling of their status follows.

Our white-tailed deer herd is projected to reach 1.7 million animals in the fall of 2000, an all time high. In 1999, more than 692,000 hunters harvested nearly 500,000 deer. There is no doubt that these magnificent animals provide a wonderful resource to watch or hunt. However, there is ample evidence to indicate that this population is not sustainable and is likely harmful to our land. The deer seasons for 2000 and beyond will be designed to reduce our herd to a more healthy level of 1.1 million.

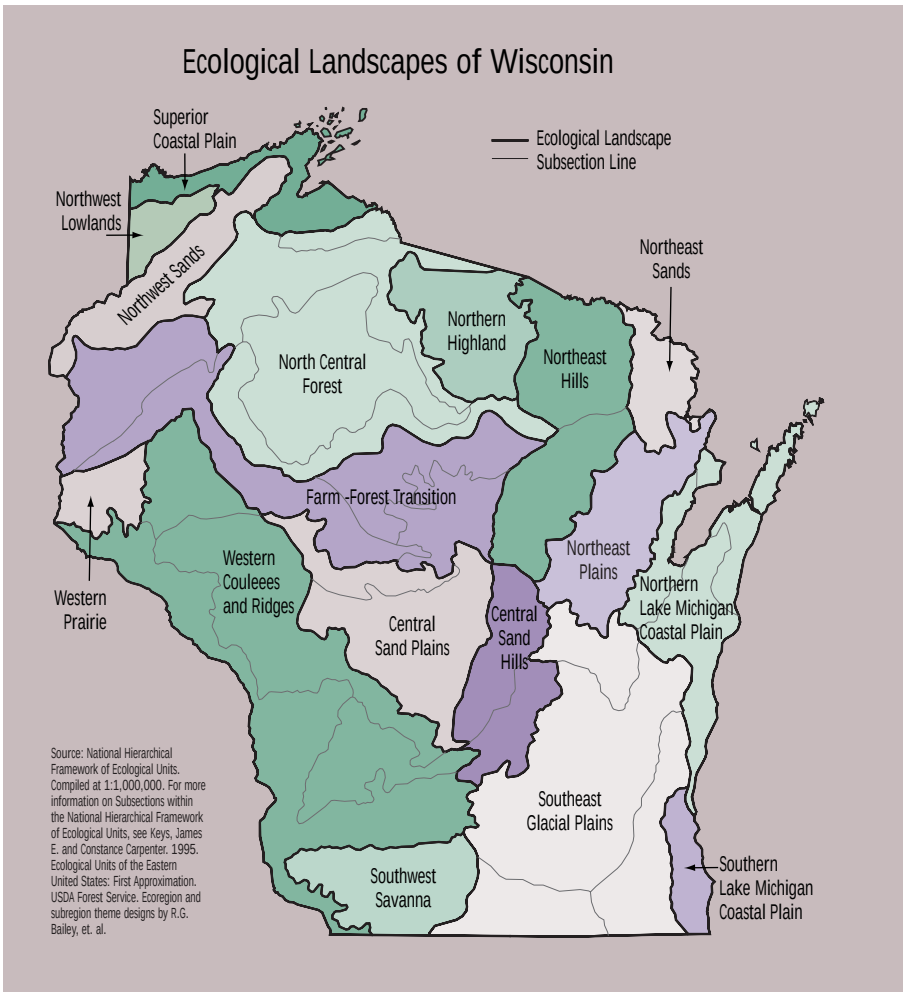
Black bear populations are thriving and spreading across the Wisconsin landscape. Nearly 13,750 black bears roam the Wisconsin woodlands. More of us have to learn to live with the bears. As evidence of bear abundance, in 1999 nearly 500 bears were live-trapped and relocated in response to damage or nuisance complaints. At the same time, the popularity of black bear hunting has never been higher. This year, 51,000 Wisconsinites submitted an application in hopes of getting one of just 6,500 hunting permits.

Wild turkeys are again delighting wildlife enthusiasts all over our state. This remarkable restoration story began in 1983 when 334 birds were transplanted from Missouri to the coulee

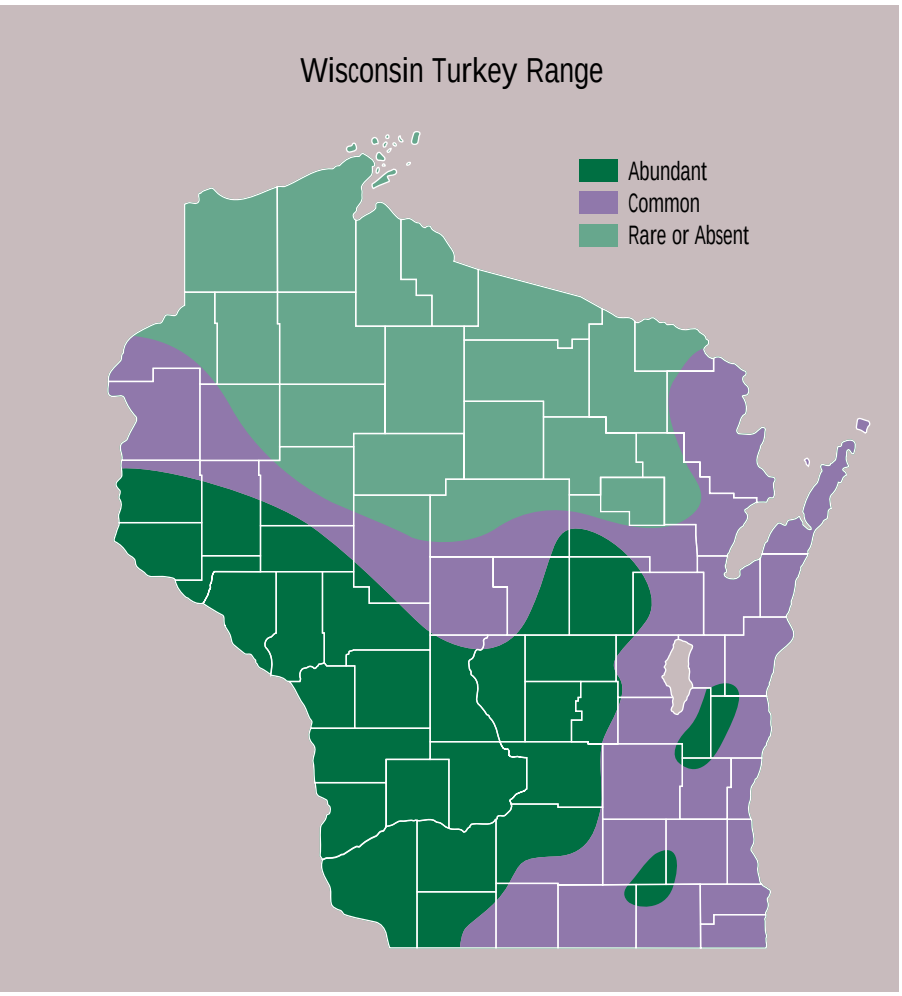


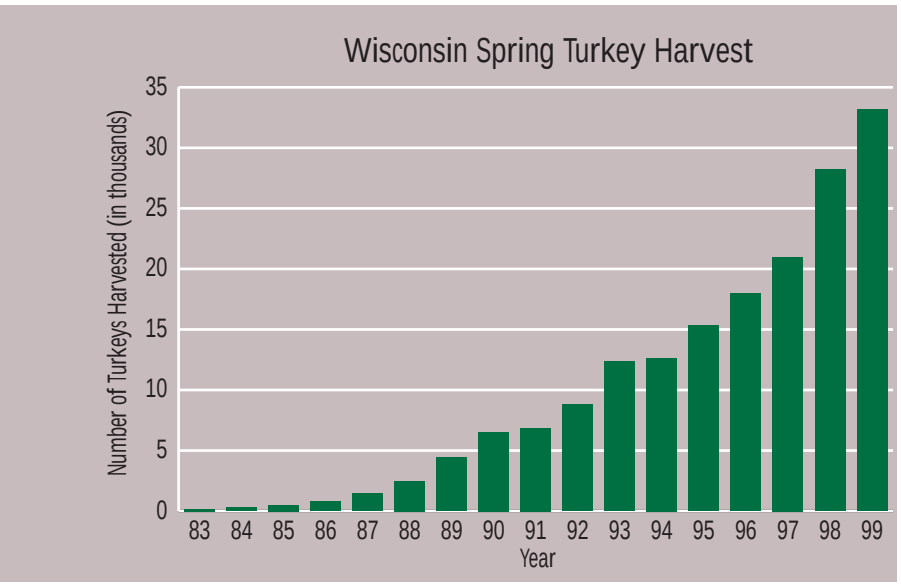
country of southwestern Wisconsin. The birds are now in their former home, which is now made up of woodlots and farmland. As the population grew, wildlife staff trapped and relocated turkeys to 49 counties. The current statewide population is projected at more than 200,000 birds. This April and May, over 109,000 hunters will experience spectacular sunrises, hear springtime bird songs, and witness our landscape come to life as they match wits with the gobblers.

Extirpated in 1866, elk were twice reintroduced unsuccessfully in 1913 and 1928-32. The first effort succumbed to the difficulties of travel from a donor state to their new home. The second effort fell to poachers when the state didn't have enough money or staff to protect them. Perhaps the third time is a charm. Following extensive study and public discussion, 25 elk from Michigan were reintroduced in 1995 on 315 square miles of the Chequamegon National Forest that provided a mix of forest rangeland, grasses, wildlife openings and aspen clearcuts ideally suited to elk. For the last five years researchers have tracked elk movement, recorded herd reproduction and assessed compatibility with surrounding resources and human populations. More than 4,000 Rocky Mountain Elk Foundation members in 19 Wisconsin chapters have provided more than $480,000 for elk research. State grants since 1993 also provide $25,000 annually to continue assessing where elk may thrive, how they interact with communities as the herd



The diversity of Wisconsin's natural resources — and the diversity of our economy, communities and recreation — is due to the interactions of rock, soil, water, weather, glaciers and plant communities to create our ecological landscapes.





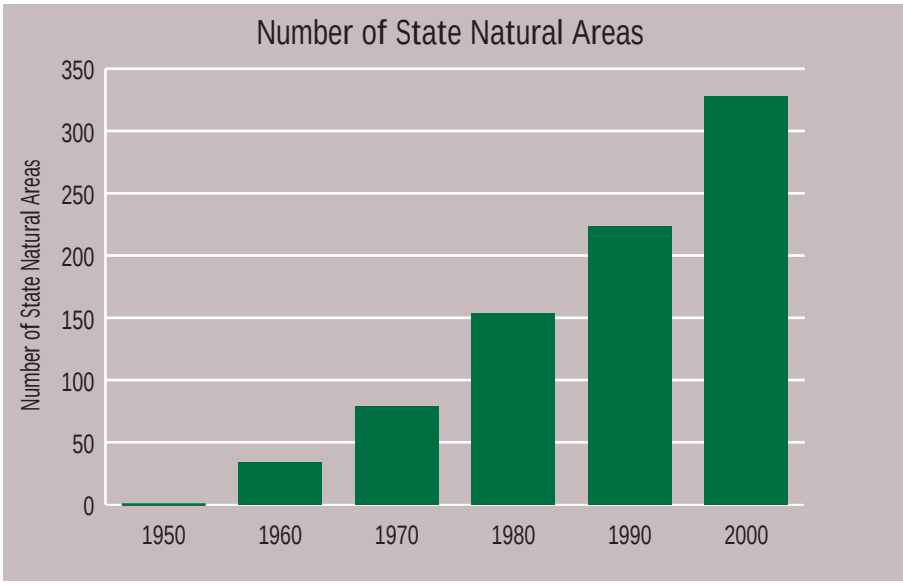
spreads and what management strategies may again include elk in the widespread mix of native Wisconsin species. The herd currently stands at about 62 animals.

Wetland habitat protection in Wisconsin is a state, regional and national success story. In 1991 the DNR coordinated an effort to involve other Midwestern states in forming the Upper Mississippi River and Great Lakes Region-Joint Venture of the North American Waterfowl Management Plan. This partnership with other agencies, private organizations, and corporations pooled resources to protect and restore wetland and grassland habitat in each state. The resulting improved habitat can now sustain strong waterfowl populations during years with average weather and growing conditions.

The goal in Wisconsin is to protect and restore an additional 400,000 acres of wetland and grassland habitat between 1991 and 2005. This should increase our breeding duck populations by an additional 200,000 ducks each spring. By 1999, we had attained just slightly over half of the habitat objective — *206,000 acres!* Spring breeding waterfowl responded to this increase in habitat with an increase of approximately 85,000 ducks (43 percent of the goal).

Urban Wildlife

When people think of wildlife and wildlife habitat, they generally think of rural and wildlife landscapes. In the last decade, however, we are working more and more in urban settings and on urban wildlife issues. Most of the discussion has focused on what to do with growing urban populations of deer and Canada geese. In response to the growing demand for wildlife management assistance, the DNR hired its first, full-time Urban Wildlife Specialist in 1999. This position is stationed in southeastern Wisconsin, the most heavily populated region of the state, where the biologist works with communities and residents to reduce human/animal conflicts. The Urban Wildlife Specialist also assists communities in other projects to attract wildlife to backyards and public lands in ways that are fruitful for both the humans and the animals.



Wild Turkey (top left), photo by Herb Lange

Geese in flight (bottom left)

Endangered Resources

In 1985, the Wisconsin Legislature established the Natural Heritage Inventory (NHI) to document and monitor the status of the rare plants, animals, and natural communities of Wisconsin. Since then, state biologists have focused on documenting the status of vascular plants, natural communities and larger animals such as birds, fish, and mussels. In more recent years, they've started collecting comprehensive information on insects and lower plants such as lichens and fungi. Inventory work completed thus far indicates that hundreds of species are endangered or threatened with extirpation in our state because of past unregulated use or because their habitat has been destroyed or degraded. Future work will focus on identifying important habitat and helping others use the NHI information to prevent species from becoming endangered.

Endangered plants and animals are managed, in part, by protecting their habitats as natural areas. From a single natural area in 1950 to 326 areas today, the state and its partners such as The Nature Conservancy and other groups are maintaining critical habitats so that these endangered plants and animals will be here tomorrow to provide genetic material, strength and resiliency to our ecosystems.

Whooping crane reintroduction

Central Wisconsin, in the vicinity of the Necedah National Wildlife Refuge, may soon be home to whooping cranes being reintroduced to the landscape nearly 100 years after they were pushed to the brink of extinction. The cranes have been making a steady recovery from a low of 15 birds in the entire world, to a population that now numbers 265 birds in the wild and 132 in captivity. The U.S. and Cana-

Karner blue butterfly (top); Pine Marten (above), DNR files; Swan watch (right)

dian governments, including the U.S. Fish and Wildlife Service, DNR, and partner agencies and organizations are trying to reintroduce the endangered species to the North American landscape. Several sites in Wisconsin and other states were studied for the reintroduction, and the Necedah area was selected because of the available habitat and proximity to the existing wild population of whooping cranes at Wood Buffalo National Park in Canada. Study members also were impressed with the outpouring of support from Wisconsin citizens. Birds for an initial whooping crane release in spring of 2001 will likely be supplied from a captive population maintained at Patuxent Wildlife Research Center near Laurel, Maryland, with birds for subsequent releases possibly coming from the International Crane Foundation, Baraboo, Wisconsin.

Karner Blue Butterfly

A habitat conservation plan and agreement protecting the Karner blue butterfly was signed in September 1999 at Sandhill Wildlife Area by federal and state conservation officials. The signing culminated nearly five years of work between DNR staff in endangered resources, forestry, science services, wildlife and our many partners on this project. The agreement is the first of its kind in the country, a "milestone in endangered species protection" and a new national model. The agreement will provide a shifting mosaic of habitat sufficient to support the butterfly's continued existence on more than 265,000 acres of Wisconsin habitat without harming local economies, costing jobs or provoking court battles. The DNR and 25 partners representing county forests, forest products companies, utilities and other state agencies crafted the plan. All partners committed to binding individual habitat conservation plans tailored to their operational needs.

Efforts to protect and restore endangered species are supported, in large part, by the sale of Wisconsin's Timber Wolf Endangered Resources Patron license plates and the Endangered Resources Checkoff Program on our Wisconsin income taxes.

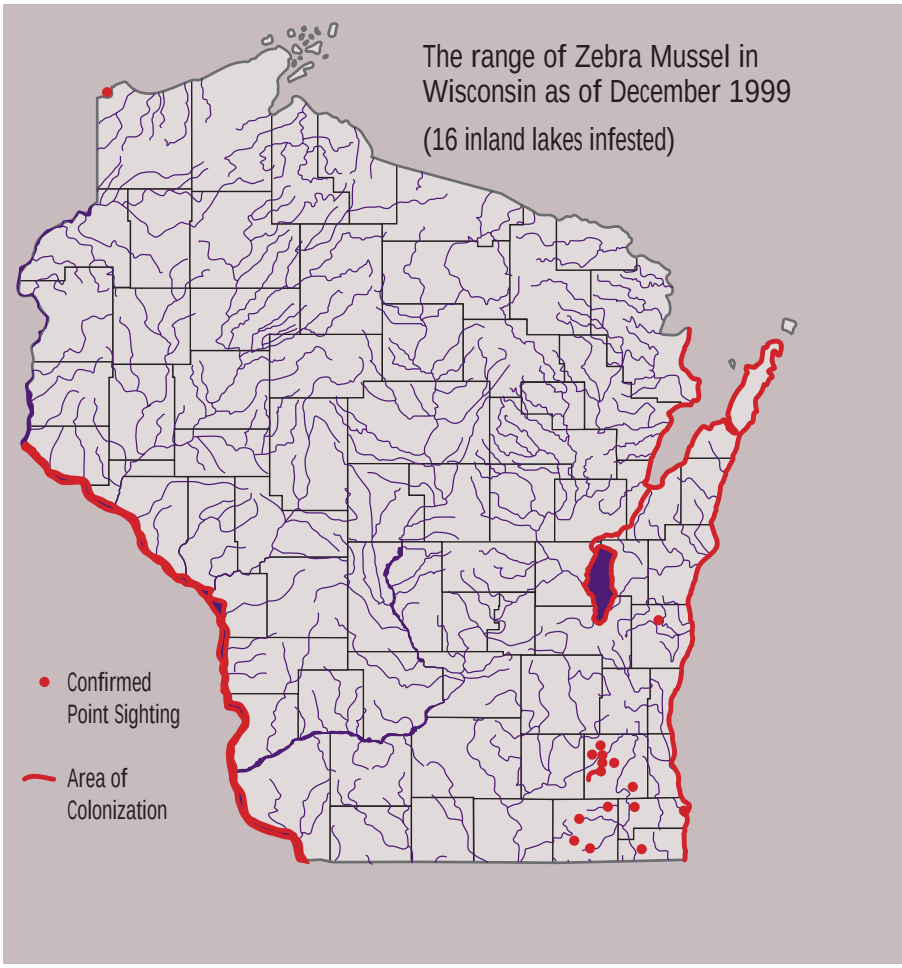
Pine Marten

Populations of the American marten, also known as pine marten, were depleted in the 1920s following years of extensive trapping and cutting of its forest woodland habitat. The medium-sized weasel prefers white cedars, balsam fir, spruce and eastern hemlock. The extirpated animal was declared state endangered in 1972. Martens were reintroduced in the Nicolet National Forest between 1975 and 1983 (172 animals released) and in the Chequamegon National Forest between 1987-90 (139 animals). A 1986 management plan sets goals of 300 martens in the Nicolet and 100 animals in the Chequamegon. Tracking in the Nicolet from the winter of 1998-99 (the most recent data available) detected 19 marten, nearly double the number in the previous year's survey.

Exotics

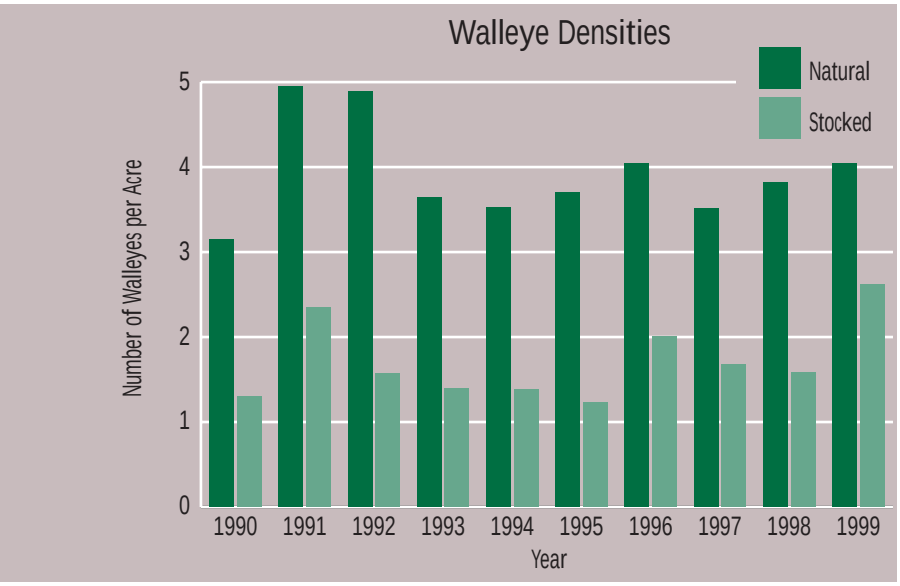
Nonnative species are invading Wisconsin's lakes, rivers and land and in many cases are harming native populations as they spread unchecked by any natural predator. The exotics outcompete native species or can change ecosystems in ways harmful to many native species. In the last 20 years at least a dozen nonnative species have invaded Wisconsin's waters, many of them originally introduced into the Great Lakes through ballast water from foreign ships, and have since been transported to inland lakes by unsuspecting boaters and other recreational users. At least 521 of the 2,100 plant species found growing in the wild in Wisconsin were introduced from other parts of the world, primarily regions of Europe and Asia. Globally, alien invasive species are regarded as a serious threat to biodiversity, second only to habitat destruction. Invasive plants (weeds) are the most abundant and troublesome of these invasive species.

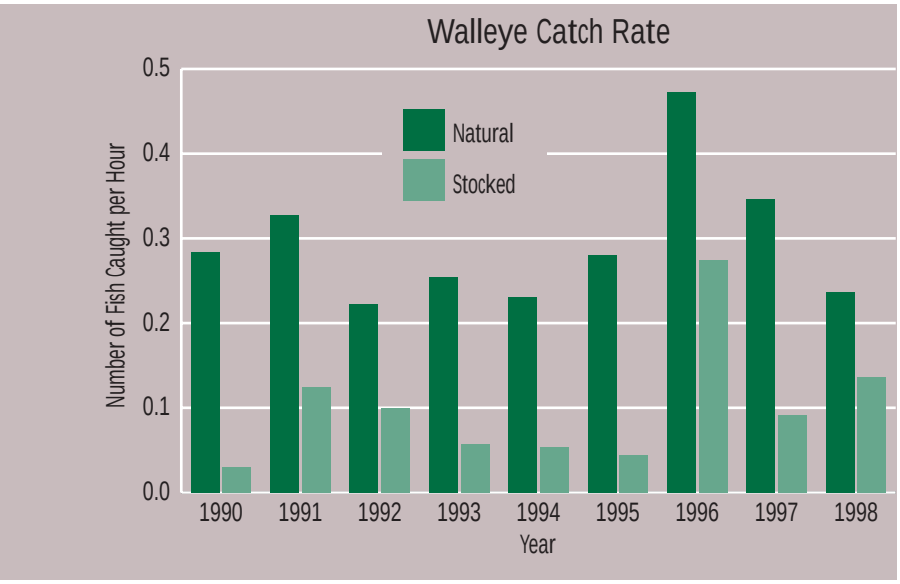
Zebra mussels are now changing aquatic ecosystems along the Mississippi River and Great Lakes in ways that harm native mussel and fish populations. The zebra mussels are considered a major factor in a sharp decline in native mussel species along the Mississippi River's East Channel near Prairie du Chien. U.S. Army Corps of Engineers summer surveys showed the number of native mussel species dropped from 27 to seven between 1996 and 1999. Zebra mussels also clog water intake pipes at electrical utilities, municipal water supply treatment plants and industries and can encrust boat hulls and damage boat engines.




Zebra musel

Although department staff continue to work with other agencies on measures to eliminate future introductions, we have directed most of our efforts to stopping the spread of the exotics already here. To prevent the spread of aquatic invaders, for example, the agency and partners are trying to work with boaters and anglers to help them understand how they can prevent zebra mussels and Eurasian water milfoil from hitching a ride on their boat hulls, propellers, and live well water. A technical advisory committee is working with landowners, nurseries and others to revise Wisconsin's weed laws to prevent further spread of invasive weedy plants such as purple loosestrife and common buckthorn.

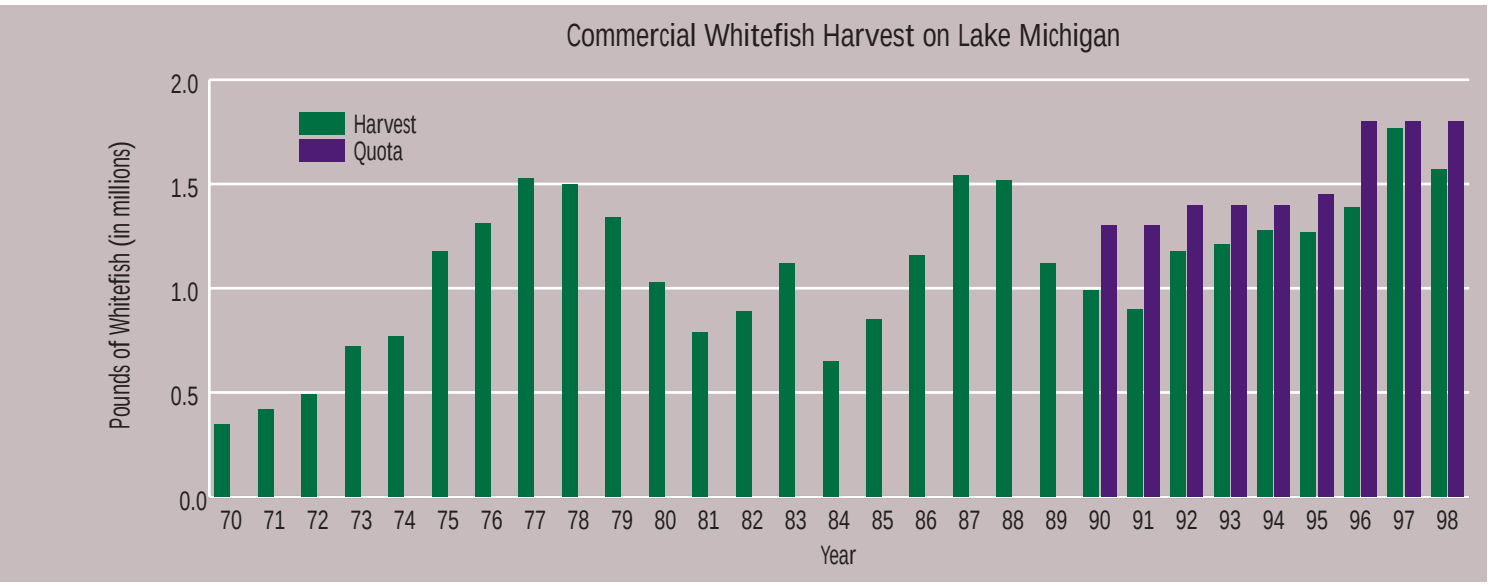




Fisheries

Wisconsin's fisheries management has come a long way from the days when the state relied on stocking fish transported in milk cans on a special rail car. Responding to research here and elsewhere showing that good habitat is the key to healthy, sustainable fish populations, the DNR is focusing on protecting and enhancing habitat. For instance, in 1999, fisheries staff improved habitat on 25 miles of trout streams, 23 lakes, several pools on the Mississippi River, and removed a dam and restored habitat on an important stream this year. Staff also review environmental permits to safeguard critical habitat.

Information collected from surveys conducted during the 1990s on northern Wisconsin lakes indicates that walleye populations that are maintained by natural reproduction averaged three to five adults per acre. That num-



ber drops considerably in lakes where stocking is used to maintain the population.

Results from 10 years of surveys of anglers on northern lakes show anglers have better luck on lakes with naturally reproducing fish populations than on those where stocking maintains a fishery. A comparison of catch rates — the number of fish caught per hour — indicates that anglers catch, on the average, about three times more fish if they're fishing a lake with a walleye population maintained by natural reproduction.

Lake Michigan fisheries

An agreement among state, tribal, provincial, and federal agencies guides management of the Great Lakes fisheries. The "Joint Strategic Plan for Management of Great Lakes Fisheries," which was renewed in 1997, is a model for the management of interjurisdictional fisheries. Work to restore lake trout in Lake Superior has been a success and has allowed increased harvests by state-licensed commercial fishers as well as tribal fishers. Lake trout no longer need to be stocked in the Apostle Islands.

The commercial fishing industry and the commercial harvest of fish on Lake Michigan have changed dramatically over the last few decades. The number of licenses has declined 59 percent since 1980, reflecting a policy designed to stabilize the industry and support serious full-time commercial fishers. The commercial harvest of yellow perch has been significantly reduced since its peak in 1987, ending in the prohibition of commercial perch harvest in the lake in 1996. Harvest of lake whitefish, economically one of the most important commercial species in the Great Lakes, averaged about one million pounds in the 1980s with a record 1.7 million pounds harvested in 1997.

Lake Michigan continues to provide exceptional sport fishing opportunities, with anglers devoting nearly three million hours to pursuing coho and chinook salmon, lake trout, brown trout, steelhead, smallmouth bass, yellow perch, northern pike, and walleye. The fishery is sustained by the annual stocking of over 4.5 million salmon and trout in Wisconsin waters alone.

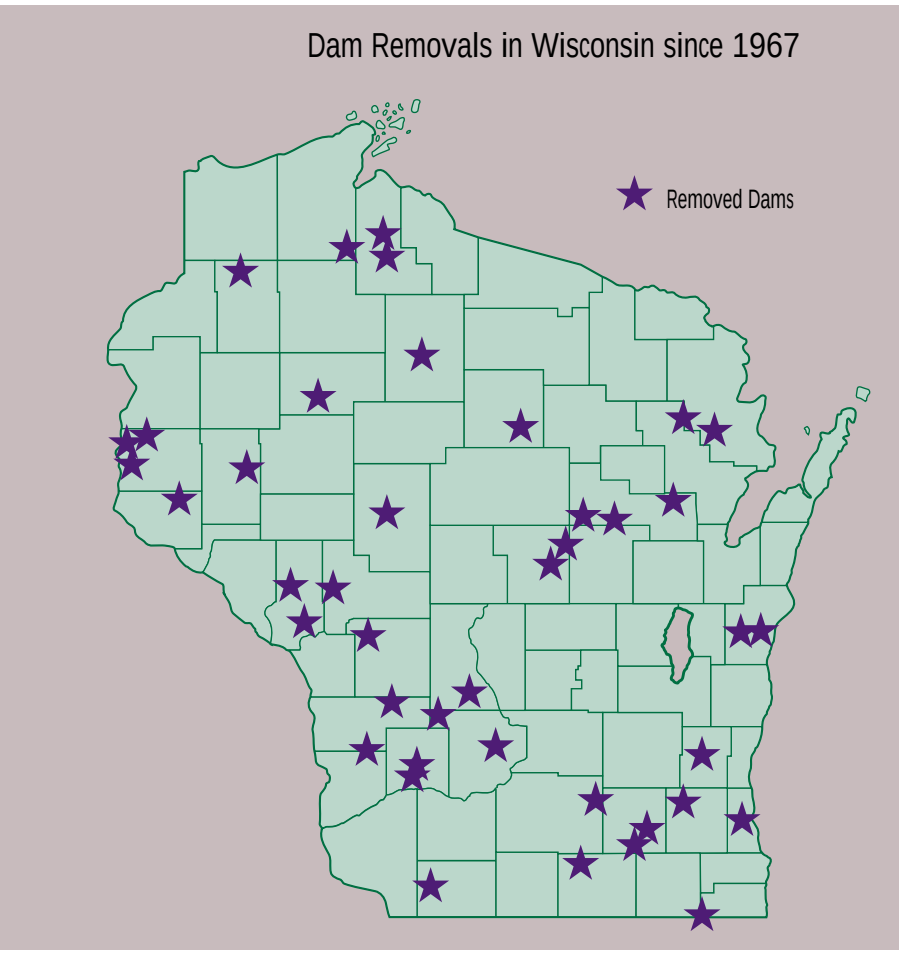
Trout Management Program

Commercial fishing (top), Trout (above), Trout on line (page 22)

Wisconsin's longtime commitment to improving trout habitat along with special regulations for certain trout streams and a new focus on using wild fish as the brood for its stocking program appear to be paying off, with anglers reporting some of the best trout fishing in recent memory.

In 1999, Trout Unlimited (TU), a national trout fishing organization, released a report calling Wisconsin's inland trout management program a model for the nation. TU noted, "Wisconsin's trout management programs set an example of habitat stewardship that other states should emulate."

In fact, Wisconsin has more than 9,000 miles of coldwater trout streams and leads the nation in miles of high quality trout streams — those with naturally self-sustaining trout populations — with 3,500 miles of Class I trout streams. That mileage reflects the state's approach to building and protecting healthy, self-sustaining trout communities by concentrating on protecting and improving habitat. The use of wild trout in the last three years has increased survival and the trout population is seeing increased natural reproduction in many



streams due to use of wild fish as the brood for stocking efforts.

TU further praised Wisconsin's more than 50-year tradition of protecting trout habitat and rehabilitating stream structures. The report stresses that Wisconsin is unique in earmarking trout stamp funds for habitat protection and improvement instead of hatchery work. From 1977 to 1997, Wisconsin's inland trout stamp program paid for improving more than 530 miles of coldwater streams on almost 400 different waters.

Castle Rock Watershed Project

Castle Rock and Doc Smith creeks are regarded as some of the best trout streams in the Midwest—although their water quality has declined in recent years and they're set aside as catch and release only. Local residents, anglers, DNR staff, Grant County Land Conservation staff, Badger Fly Fishers, and the Harry and Laura Nohr Chapter of Trout Unlimited have joined to form a committee dedicated to improving the creeks' water quality and restoring shoreline habitats to restore the creeks' trout fisheries. The Castle Rock Watershed Committee, which meets several times a year, has held monitoring workshops for landowners and anglers and has secured approximately $200,000 in public and private grant funding that help cover the costs of installing stream bank protection and other best management practices to prevent sediment from entering the water.

Along with other streams in the region, the partners hope that Castle Rock Creek will become a self-sustaining wild brown trout fishery.

Dam Removals

According to a report released in 1999 by Trout Unlimited, American Rivers and Friends of the Earth, Wisconsin is a national leader in removing unsafe and uneconomical dams. The report also documents more than 465 dam removals across the nation. The DNR's records show that more than 50 dams have been removed.

More than 3,700 dams of varying sizes have been built on Wisconsin's rivers and streams in the last 150 years for reasons including creating boating recreation, mill operation, and generating electric power.

But today, across the state, about 300 to 400 small dams no longer serve the purpose for which they were built. Some of these dams were constructed over 100 years ago and yet were built with a life expectancy of 40 to 50 years. Many of these dams are badly deteriorated and pose hazards to human safety as well as the river's health. Research shows that the presence of some of these dams degrades water quality, blocks migration of fish and other species, fragments the river ecosystem, causes dramatic changes in stream flow, disrupts spawning of native fish, reduces aquatic insect habitat, and increases erosion.

Dam removal is not appropriate in all situations but many times it is the single most important thing we can do to restore the health of a river by providing a more natural free-flowing state. It also is often more economical to remove a dam than to repair it and provide for future upkeep. Removal of a dam typically costs two to five times less than repair.

In 1999, the River Alliance of Wisconsin and the national office of Trout Unlimited be-

gan the Small Dams Program to improve the dam removal or repair decision making process in communities across Wisconsin. The program seeks to provide information that enables selective dam removal to be considered on its merits. This is the only program of its kind in the country.

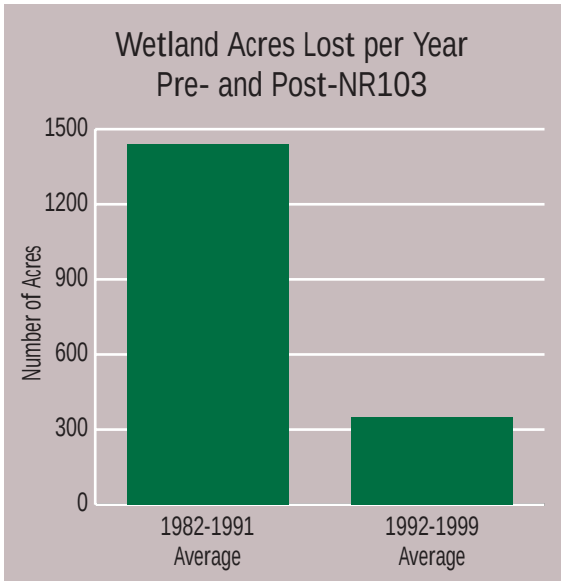
Baraboo River Restoration Project

More than 100 years ago, dams transformed segments of the Baraboo River from a fast-moving river with healthy fish populations to a series of sluggish impoundments. Partners have joined DNR to remove four dams and restore the fishery and ecosystem along what will be approximately 120 miles of free-flowing river when the last dam is eliminated by 2003. The project also includes removing contaminated sediments, enhancing and restoring fisheries habitat, and monitoring how the dam's removals affect the aquatic ecosystem. This project is a catalyst for development of the river as a recreational and environmental corridor. Already, the fishery is improving since the Baraboo Waterworks Dam was removed in 1998. Researchers last fall found 24 fish species in a stretch of river that two years earlier — when it was an impoundment created by the dam — had yielded only 11 species. And they collected 87 smallmouth bass — a species that doesn't tolerate poor water quality — where two years ago they had collected only three. In addition to the DNR, partners include the River Alliance, the City of Baraboo, Village of LaValle, Sauk County, the Sand County Foundation, the U.S. Army Corps of Engineers, the LaValle Citizens Advisory Committee, UW-Extension, Natural Resources and Conservation Service, the U.S. Fish and Wildlife Service, Alliant Energy, the National Fish and Wildlife Foundation, UW-Madison, UW-Stevens Point, and local citizen groups.

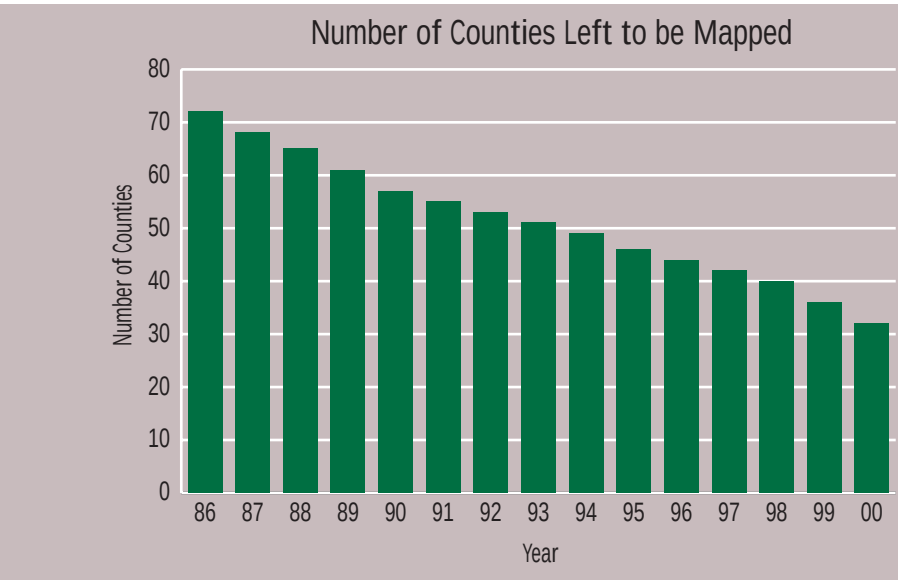
Wetlands

In the 1800s, Wisconsin had about 10 million acres of wetlands (nearly one-third of Wisconsin's land area). But due to human activity and increasing development pressure over half of those wetlands were drained for agriculture or development over the next 150 years.

Wetlands near MacKenzie Environmental Center (top)



An accompanying chart shows the acres of wetland loss that were permitted through the U.S. Army Corps of Engineers (COE) Section 404 permit program. The figures for 1982 through 1991 are an average of the estimated wetland loss calculated from COE data. In 1991, administrative code NR 103 was adopted, which established wetland water quality standards. NR 103 gave the DNR the authority to deny water quality certifications for COE Section 404 permits. This resulted in a drop of over 300% in permitted wetland losses. More recently, the loss of wetlands to development has slowed due to regulations and a better understanding



of the habitat, water quality protection, and flood control benefits wetlands provide.

In addition, thousands of acres of wetlands and associated uplands have been protected under programs in which private landowners can voluntarily enroll, such as the Wetland Reserve Program, which is a new partnership as of 1998 between the USDA Natural Resources Conservation Service (NRCS) and the DNR. By combining funds and working together, more wetlands can be restored at lower costs to each agency.

Western Prairie Habitat Restoration Area

Tallgrass prairie is the most threatened plant community in the Midwest and partners in western Wisconsin are coming together to restore and maintain a viable prairie ecosystem in portions of St. Croix and Polk counties.

Eventually, through buying land and working with private landowners on their own lands, the partners hope to protect 20,000 acres of grasslands to provide a mix of large, intermediate and small grassland landscapes interspersed through the prairie pothole region of western Wisconsin. This area also has been the focus of state and federal acquisitions targeted at protecting wetlands in the area and providing habitat for breeding ducks, pheasants and grassland birds.

Partners in this project include the DNR and the U.S. Fish & Wildlife Service, Western Wisconsin Prairie Enthusiasts, Pheasants Forever and the Kinnickinnic River Land Trust. A locally based Citizens Advisory Committee is being formed for input on future acquisition efforts.

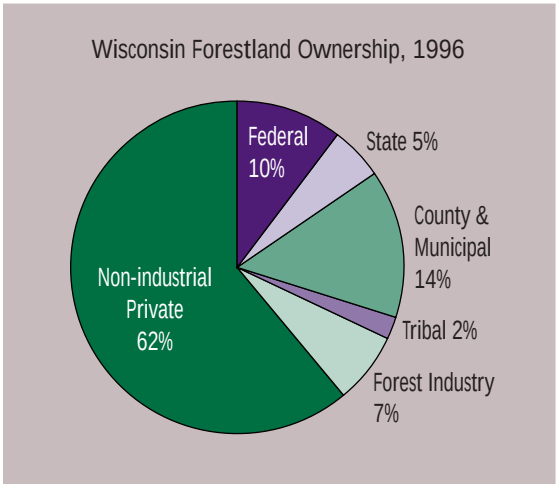
Prairie Coneflower, photo by Michael R. Johnson

Forestry

Our forests are a treasured natural asset that play a major role in our state's ecology and economy by providing wood for paper, furniture, buildings, and fuel; homes for wildlife; shade and stability for shorelines; and beauty and recreation for residents and visitors. Forests cover about 46 percent of Wisconsin's 34.8 million acres, a total that has remained relatively constant since the first forest inventory in 1936. Despite development pressure, forest acreage increased by 640,000 acres between 1983 and 1996, primarily because marginal cropland reverted to forests.

The volume of wood in Wisconsin's forests provides another measure of forest health. Over the past 40 years, the volume of wood in Wisconsin's forests has more than doubled. Landowners are cutting more timber but are growing more wood than they're cutting.

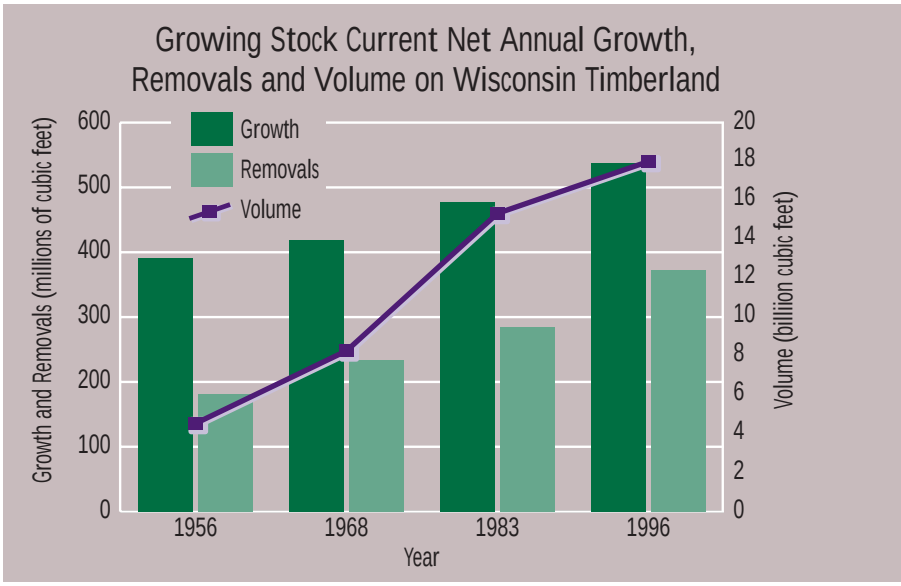
Few people living today remember the starkness of northern Wisconsin's landscape at the turn of the century because of extensive logging and widespread wildfires. A century of patient progress and good management has brought back much of the glory of Wisconsin's northern forests. State, county and private foresters work with private landowners to help them understand the long-term goals possible for their forests and to help them develop management plans that meet their ecological, eco-



nomic, aesthetic, and recreational goals for the land. Such plans are particularly important because the state, federal and county governments together own and manage about 29 percent of the forests while private landowners, including Indian tribes, own 71 percent.

As demand for wood products increases and timber harvesting declines on public lands, harvest pressure on private lands is increasing. Non-industrial private forestland changes ownership about every 30 years in Wisconsin. Most native trees in our state do not reach maturity until they are 80 to 100 years old or more. With increasing harvest pressure on private lands and the relatively short land ownership tenure, consistent long-term forest management becomes ever more important.

Sustainable management of our private forestlands is at the heart of good stewardship of the forest resources of Wisconsin. Sustainable forestry allows our forests to provide the wood products demanded by society, along with the other economic and social benefits that people want and need, while maintaining and improving the forest ecosystems of our state.



Urban forests

Trees and other vegetation in and around our communities are getting a lot of attention these days as a resource worth managing well. The total urban forestland now covers nearly five percent of Wisconsin. New development into agricultural land, typical of southern Wisconsin, is actually increasing urban tree canopy through tree planting, whereas development into forested areas, typical of northern Wisconsin, is decreasing canopy. Management of urban forests and appreciation for their value to residents and business owners has steadily improved since 1991 when the DNR began assisting communities in building sustainable tree care programs. Since the beginning of DNR's urban forestry program in 1991, the number of Wisconsin communities providing management for their community trees has more than doubled (from 106 to 266) and the number of communities achieving Tree City USA, a national recognition of urban forest management, has grown to 125. Wisconsin now ranks fifth in the nation for total number of Tree City USA communities.

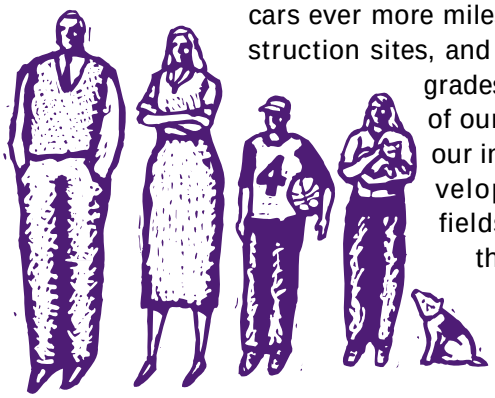
CHAPTER FOUR

Making People Our Strength

People, organizations and officials work together to provide Wisconsin with healthy, sustainable ecosystems. In partnership with all publics we find innovative ways to set priorities, accomplish tasks and evaluate successes to keep Wisconsin in the forefront of environmental quality and science-based management.

Wisconsin has done a good job in the past 30 years of cleaning up and controlling pollution from smokestacks and effluent pipes, and restoring to our landscapes eagles, wolves, wild turkeys and trumpeter swans. But the largely top-down, regulatory approach so important to achieving these successes is no longer enough to get the job done.

Many of the thorniest natural resource challenges Wisconsin faces now are ones to which we contribute through our daily activities and choices: air pollution from driving our cars ever more miles; runoff from cities, construction sites, and farm fields that now degrades or threatens 40 percent of our rivers and 90 percent of our inland lakes; and, rapid development of onetime farm fields, woods and shorelines that fragments wildlife habitats and contributes to water pollution.



At the same time, citizens are increasingly calling for smaller government, more information and a greater voice. These trends are pushing the department to pioneer new ways to work with people as partners in sustaining the landscapes Wisconsinites love while also nurturing our diverse economies, cultures and social traditions.

The DNR reorganized in 1995 to better foster this "ecosystem" approach and build partnerships with other governments and citizens. Field staff are now assigned to work in one of Wisconsin's 23 major river basins, or Geographic Management Units, and to meet with a team of local citizens in each basin to identify natural resource problems and opportunities, set priorities and craft plans for addressing them, and carry them out.

In addition, reorganization created a new division to focus on working with businesses, communities and citizens to prevent pollution and to work to improve environmental and recreational features in the community through providing grants and technical expertise. The reorganization also retooled some offices and started others to create "service centers" that put most Wisconsin residents 30 minutes away from DNR staff who can sell them licenses and answer their questions.

Here are some examples of partners working together to protect, enhance and share stewardship of Wisconsin's natural resources:

University of Wisconsin-Cooperative Extension

For more than 20 years, the University of Wisconsin-Cooperative Extension has provided leadership on educational programming in Wisconsin's land and water conservation programs. That's why in 1997 DNR was pleased to collaborate with Extension, the USDA Natural Resources Conservation Service and EPA to pool our resources to pay for basin educators who work with the partnership teams in more than half of Wisconsin's 23 basins. These educators help develop basin education strategies to address priorities as identified by partner teams, assist in identifying potential team members, organize partner team meetings, assist local agencies with education efforts and more.

Sand Creek

Busy beavers and fallen trees contributed to erosion and a split stream channel in Sand Creek, a Class I trout stream in Monroe and Jackson counties. DNR, local governments, conservation groups and individual citizens came together to remove obstructions from the stream and place in it sandbag structures. The idea was to contain water flow in a single channel, which helped to scour and deepen the channel to provide better habitat and spawning areas for the native trout. The partners also set goals of managing the upland, now a mix of old-growth forests and agricultural fields, to support diverse species and a variety of uses, and of evaluating Sand Creek area's past, current and future ecological capability.

The DNR Bureau of Endangered Resources completed an important part of that last goal by surveying the area's plant, animal and aquatic species to enable partners to understand what's there now so they can seek to protect, and increase, the diversity of species.

Partners inside and outside the department have made great strides toward accomplishing other goals:

- Fort McCoy Youth Program participants worked alongside DNR fisheries staff to install over 50 in-stream structures purchased with money donated by Trout Unlimited.
- Quad County Turkey, Ltd., donated money and time to plant 500 oak seedlings on abandoned agricultural fields to create habitat to support a diversity of species.
- The Jackson County WCC crew cut residual overstory on a 40-acre oak sale to promote wildlife habitat.
- DNR wildlife, forestry and district field operations staff assisted with a prescribed burn to allow planting of native prairie grasses, 500 red oak trees, 1,700 white spruce trees and 2,100 wildlife shrubs.
- DNR's Water Supply program directed the proper abandonment of the existing well, which could have provided an easy avenue for contamination for groundwater, and eventually, the stream.

Mercury "roundup" events

Communities, businesses, utilities and dairy farmers have formed partnerships with state government in recent years to reduce mercury in homes, businesses and the environment. Mercury has been commonly used in thermometers, medical and other equipment, and the silvery toxic metal can damage the nervous system of, and even kill, people exposed to large enough doses of it. Emissions from coal-burning smokestacks are a leading cause of mercury contamination in the environment: mercury falls to Earth in rain, runs into a lake or river, and enters the food chain. Once in the food chain, it concentrates at each step and eventually reaches levels in some fish species that trigger warnings to people to limit their number of meals of such fish from that water. The contaminants can build up in human bodies over time and cause health problems ranging from small, difficult to detect changes to birth defects and cancer.

Here's a sampling of some of the partnerships and their achievements:

- Mercury Waste Solutions, Inc., the DNR and the cities of Appleton, Green Bay, Madison, Marinette, Milwaukee,

Kenosha and Racine collected during "mercury roundup" events 3,579 pounds of liquid mercury, 5,539 pounds of mercury-containing devices, and over 100,000 fluorescent lamps that contain mercury! That's more than the typical amount of mercury released to the environment in one year from all sources in Wisconsin!

- In 1999, some of the same communities held events that spurred citizens to trade in 5,237 mercury thermometers for new, donated electronic ones and to turn in 26,700 fluorescent lamps.
- Through an EPA grant, participating dairy service providers are given a $200 certificate to pick up their old mercury-containing manometers from dairy farms and replace them with new electronic manometers.
- Nine electric utilities and heating, ventilation and air conditioning (HVAC) contractors and six wholesalers in southeastern Wisconsin are encouraging property owners to trade in thermostats which contain a mercury switch for one with a digital or electronic switch. Through June, 1999, the partners collected 3,272 thermostats and 29 pounds of mercury for recycling.

Enhancing waterfront recreation

Since 1991, Beloit's city officials and citizens have parlayed more than $1.1 million in state Stewardship Grants, local funds, and lots of elbow grease into a waterfront park that's now a hub of recreational and economic activities. They've bought land along the Rock River and created walkways, lighting, play areas and trails.

County Forestry

The Wisconsin DNR Forestry program has a long-standing partnership with the County Forests in Wisconsin. In fact, January 25, 2000 was the 70th anniversary of the formation of the first County Forest. The initial entry was 10,180 acres in Langlade County. This dynamic partnership has continued and expanded from this modest beginning to over 2.3 million acres today in 29 Wisconsin counties. The most recent county to participate in the program is Vernon County, which joined on April 28, 1999. Through sustainable forestry, the County Forests provide timber, wood products and employment, as well as wildlife habitat and recreational opportunity, while preserving those values for generations to come.

Serving as wardens' eyes and ears to protect wildlife

A small but active black market for large, whitetailed deer racks is spurring increasing poaching activity in western Wisconsin counties. Area DNR conservation wardens, hunters, citizens and businesses responded last year by creating a "Wisconsin Whitetail Watch" program to help catch poachers and improve relations between hunters and landowners. Volunteers receive a wallet card with instructions on

how to report violations to a warden and a decal to display on their vehicle to deter potential poachers. Sponsors can buy "Watch" signs and work with local landowners to post that land and have volunteers patrol it in exchange for allowing program volunteers to hunt the land. Whitetails Unlimited donated $1,800 to pay for start up expenses, Badger State Sportsman's Club in Stoddard is serving as a "bank" and bookkeeper for all donations, and a local advertising agency is supplying the decals and membership cards. Gander Mountain, Century Telephone, and Matthews Bows are helping to pay for the program.

Since the program's founding this past spring, wardens are getting calls from citizens throughout western Wisconsin reporting deer poaching. For instance, calls during the November 1999 gun-deer season led to the arrest of suspects who admitted to killing at least two deer and leaving them in fields to rot, and arrests of people illegally shining deer while in possession of firearms.

Northern Highland-American Legion State Forest

The public is partnering with the DNR to guide how the state's largest property will be managed and what uses will be allowed where for the next 15 years. DNR staff and interested citizens have been working for two years to develop goals and visions to manage the 221,000-acre Northern Highland-American Legion State Forest, the nearby 18-mile Bearskin State Trail, and the 4,096-acre Powell Marsh Wildlife Area, which span Oneida, Iron and Vilas counties. The plan examines the social climate, taking into account economics, ecological conditions, and the forest's two million annual visitors. Forest managers have been meeting with local, regional and statewide organizations; forest users; Native American tribes; fish and game groups; neighbors and other interested groups. Updates are available through newsletters, open houses and an Internet web site that tracks master plan progress.

Milwaukee's Menomonee Valley

For years, the Menomonee River Valley was the backbone of Milwaukee's industrial might, employing more than 50,000 people in foundries, power plants, tanneries, cement plants and chemical companies. Its decline as an industrial center has created numerous economic and environmental challenges. With problems of soil and groundwater contamination, air pollution, and numerous challenges to fish and

Northern Highland-American Legion State Forest

wildlife habitat, the Department, the City of Milwaukee and more than 50 partners have combined efforts to address these problems and revitalize the area. The EPA has given Milwaukee a $200,000 grant to study how groundwater flows and interacts with the Menomonee River and Lake Michigan as a first part of guiding efforts to test and clean up contaminated sites in the valley. The City of Milwaukee has created a plan for redeveloping and restoring jobs to the valley and in conjunction with the state, has recreated a wetland area to improve habitat and reduce flooding.

The Department has continued to work with the city and numerous partners in the development of the Hank Aaron State Trail. Development of the trail adjacent to the river has facilitated the return of a more natural riverbank in several areas. The trail has also been heavily promoted as an alternative transportation corridor. It will link the west side of Milwaukee with Lake Michigan and the downtown, the largest employment center in the state. Linkages from the trail to the adjacent neighborhoods are a key element in trail development, as these linkages will offer access to the much needed employment and recreation that the corridor will offer.

Yellowstone Lake (below). Photo by Robert Hansis

Horicon Marsh signs (top, page 33); DNR staff provide training on protecting wet lands and lakes (bottom, page 33)

Yellowstone Lake

Yellowstone Lake was created in 1954 for recreation and fishing by damming the Yellowstone River in Lafayette County. The lake's water quality and fishery have suffered because the relatively shallow 455-acre impoundment is located in an agricultural watershed and receives a fair amount of runoff loaded with fertilizer and sediment. In 1994, the DNR and partners, including local government and conservation clubs, created a plan to address the problems by removing rough fish, stocking game fish, and protecting predator fish to help bring carp and bullhead populations under control. Other actions called for in the plan include some restrictions on boating activity, and efforts to reduce sediment and fertilizer entering the lake. Already, partners have removed about 100,000 pounds of carp from the lake, the county has worked on improving erosion control and fish habitat, partners have stocked 5,000 bluegill in the lake, and a local sports group has nearly completed a handicapped-accessible access on the lake. As a result, the lake's water clarity and fishery appear to be improving. Largemouth bass reproduction increased in 1999, channel catfish are reproducing, size and condition of individual carp have increased —indicating that carp numbers are decreasing — and the lake is maintaining a good population of large sportfish such as largemouth bass, musky, northern pike, and walleye. There is still more work. Despite stocking efforts, the bluegill population has shown little reproduction and has declined since 1995. Future management will focus on establishing aquatic vegetation and helping the bluegill fishery make a comeback.

Horicon Marsh Partnership Efforts

In January 2000, the DNR and U.S. Fish and Wildlife Service began treating 20,976 acres of the Horicon National Wildlife Refuge, followed by the 10,967-acre state Horicon Wildlife Area, with a natural fish toxicant to eradicate the carp populations that dominate the marsh. These rough fish had comprised about 98 percent of the marsh's total fish population because their bottom feeding habits uproot the aquatic plants and stir up bottom sediments. Since such plants provide the base of the food chain, the lack of plants harms the entire marsh ecosystem. Removing the carp is part of an overall, long-range Horicon Marsh Management Plan aimed at improving the wildlife and fishery habitats, along

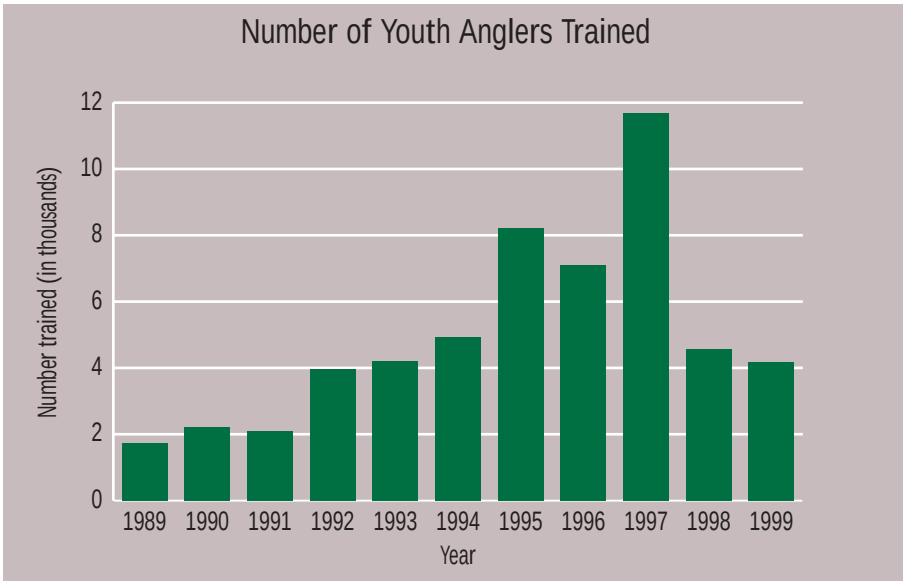
with water quality, on the 50-square mile marsh. Other efforts to improve the marsh ecosystem include work by DNR and local partner groups to construct a 200-acre flowage and a $400,000 water quality-monitoring project. That monitoring project is a cooperative effort among the department, the Horicon Marsh Area Coalition, Town of Hubbard, Dodge County, Lake Sinnissippi Association and the U.S. Geological Survey. Working together we're accomplishing more than we could have accomplished separately.

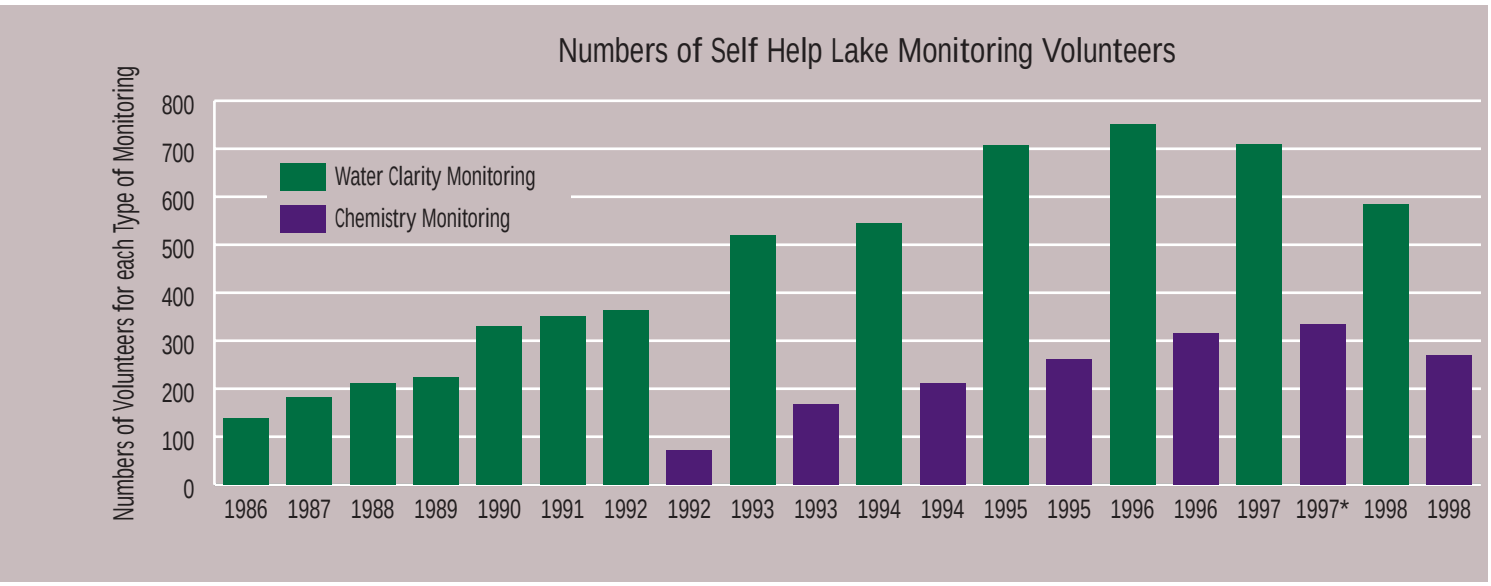
Introducing kids to the fun of fishing

Providing people the opportunity to connect with Wisconsin's outdoors encourages conservation and recruits new anglers into a fun and relaxing form of recreation. DNR fisheries staff team with schools, youth agencies, angling groups and other sport organizations to introduce young anglers to fishing and the aquatic environment. Over the past decade, nearly 55,000 youngsters have participated in the formal program, while many more have taken advantage of informal clinics and learn-to-fish events supported by the angler education program. Now that DNR staff have finished developing new materials and can devote more time to conducting workshops, the numbers of youngsters served by the program is expected to climb again.

Keeping a watchful eye on Wisconsin's lakes

Since 1986, the DNR and thousands of volunteers have worked together to monitor the water quality of Wisconsin's inland lakes. DNR staff train volunteers and give them the tools to monitor water clarity and collect samples to be analyzed for water chemistry properties. Self-Help Lake Monitoring Program volunteers get the chance to learn more about their lakes and enrich their stewardship of them while building a quality information base that lakeshore owners and local, state, and federal governments can use to help make decisions about how to manage the lakes. The volunteers allow us to monitor far more lakes than available DNR staff could monitor.





*1997 figures reflect a "freeze" placed on the number of volunteers in the water chemistry side of the program because of inadequate resources and a change to a new data entry system.

Cleaning up and connecting to Wisconsin rivers

The shorelines of Wisconsin's rivers are considerably cleaner this year thanks in large part to participants in Water Action Volunteers, a cooperative program that seeks to educate local citizens about streams and rivers by getting them involved in activities to clean up and protect waters near them. DNR and UW-Extension work together to help recruit and coordinate volunteers for the program. In 1999, 1,762 volunteers collected 40,550 pounds of garbage, 1.5 tons more than the previous year and enough trash to fill more than four garbage trucks, and cleaned enough shoreline to stretch from Madison to Milwaukee. Also in 1999, 719 volunteers stenciled 1,517 storm water drains to warn people who see the message that the drains lead directly to the nearest lake, river or stream, so that people need to be careful of what they allow to go down the stormdrains. Twenty-one county agencies in 1999 distributed stencils to local citizens: Adams, Buffalo, Burnett, Chippewa, Columbia, Dane, Dunn, Eau Claire, Fond du Lac, Green Lake, Grant, Green, Marathon, Marquette, Milwaukee, Oneida, Ozaukee, Rock, Washington, Waukesha, and Waushara.

Lake watcher with secchi disk (right)

CHAPTER FIVE

Providing Outdoor Recreation

Our citizens and visitors enjoy outdoor recreation and have access to a full range of nature-based outdoor recreational opportunities.

Outdoor recreation is a passion in Wisconsin and a cornerstone of the state's economy. Tourism, much of it tied to the state's outdoor recreation and scenic beauty, generates $6.5 billion a year and bankrolls more than 180,000 permanent jobs.

Wisconsin residents and visitors alike can find places of scenic beauty to hunt, fish, camp, swim and pursue a wide variety of recreational activities. The DNR manages, and holds easements and agreements, on:

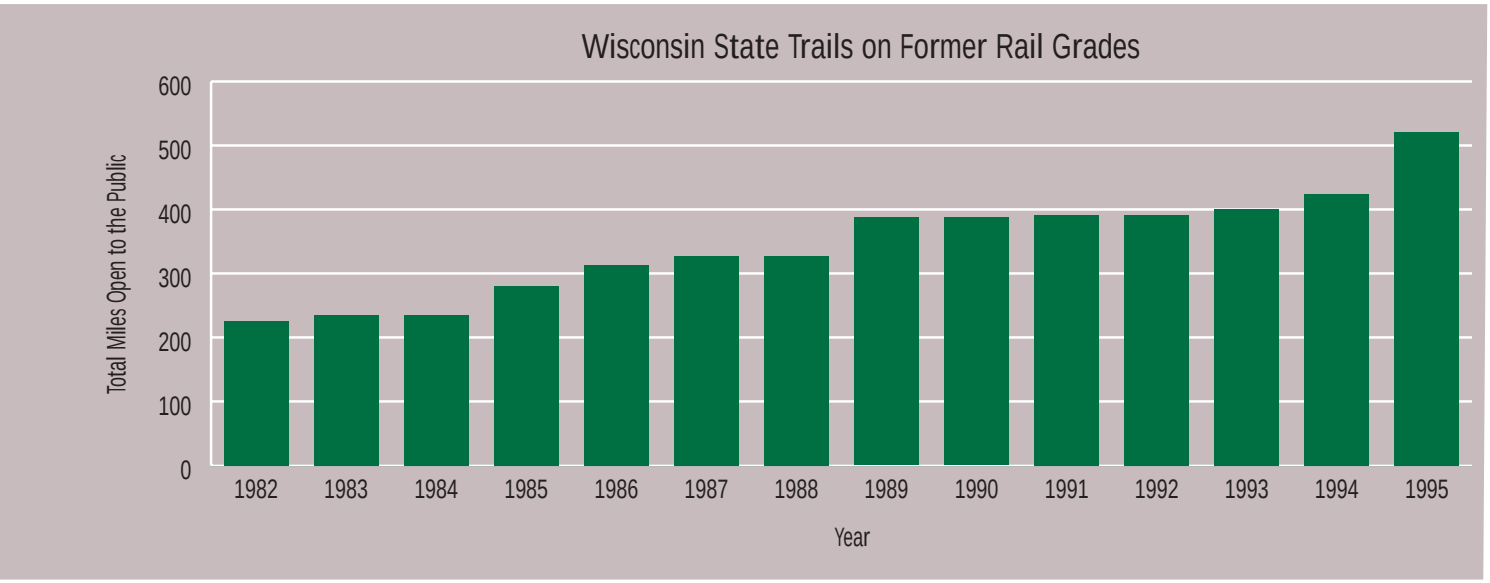
- more than 15,000 lakes and 44,000 miles of rivers and streams;
- nearly 87,000 acres of state parks and trails;
- 215 wildlife areas comprising over 490,000 acres;
- some 285 public fisheries projects containing 113,650 acres;
- 326 state natural areas encompassing about 120,000 acres; and,
- over 502,500 acres of state forests

On our lakes, state parks and trails, wildlife areas, fisheries projects, State Natural Areas and state forests, residents and visitors can find a place to stretch their legs and revitalize their soul.

Even that abundance is but a small share of the recreational lands in Wisconsin. State expenditures provide only 12 percent of the $356 million a year spent by county and local government to provide parks and recreation opportunities. That picture is unlikely to change given the current trend toward smaller government and small user fees to keep state properties affordable.

Local and county governments use federal and state grants as well as local taxes to buy, develop and maintain most of the land for team sports facilities like swimming pools, tennis courts, and soccer and softball fields.

Nevertheless, demand for larger outdoor spaces remains strong. In the last 30 years, Wisconsin has gained more than one million people — meaning more hunters, anglers, boaters and snowmobilers. There is also a growing interest in healthful silent sports such as cross-country skiing, hiking, mountain biking, in-line skating, and snowshoeing.



Investing in public lands

Providing and sustaining a commitment to outdoor recreation takes money and maintenance. Wisconsin has made significant headway in purchasing large blocks of property that are equally valuable for public recreation and resource protection. Since 1988 the state has acquired approximately 247,733 acres of recreational lands, 179,500 acres of which were acquired through the Stewardship program. These major public acquisitions include, in parts of or additions to:

- Chippewa Flowage in Sawyer County.
- Lower Wisconsin State Riverway.
- Turtle-Flambeau Flowage in Iron County.
- Wisconsin Dells State Natural Area.
- abandoned railroad grade in Brown, Oconto, Marathon and Shawano counties to establish the Mountain Bay Recreation Trail.
- abandoned railroad grade in Douglas and Washburn counties for the Wild River State Trail.
- Spread Eagle Barrens State Natural Area in Florence County.
- frontage along the Menominee River in Marinette County.
- Willow Flowage in west central Oneida County.
- Bill Cross Rapids Wildlife Area in Lincoln County.
- LaSage Unit of Wolf River Bottoms Wildlife Area in Outagamie County.
- Black River State Forest additions in Jackson and Clark counties and Lake Arbutus and the Black River.
- St. Louis River Streambank Protection Area in Douglas County along Red River.
- Bibon Swamp Natural Area in Bayfield County.
- Buckhorn State Park and Buckhorn Wildlife Area additions in central Juneau County.
- Lapham Peak Unit — Kettle Moraine State Forest in Waukesha County.
- Loew's Lake Unit — Kettle Moraine State Forest in Washington County.
- Ridgeway Pine Relic State Natural Area in Iowa County.
- Koshkonong Wildlife Area in Jefferson County.

- Glacial Habitat Restoration in Columbia and Dodge County.
- Hook Lake/Grass Lake Wildlife Area and Natural Area in Dane County.
- 32,000 acres (about 50 square miles) in "The Great Addition"— the largest state conservation land acquisition in history in the northern Wisconsin counties of Iron, Oneida, Vilas, and Lincoln, including acreage in the following projects:
  - ✔ Turtle-Flambeau Scenic Waters Area
  - ✔ Northern Highland-American Legion State Forest
  - ✔ Willow Flowage Scenic Waters Area
  - ✔ Moose Lake State Natural Area
  - ✔ Ice Age Trail and Bearskin-Hiawatha Trail
  - ✔ Menard Island Resource Area
  - ✔ Woodboro Lakes Wildlife Area

And, this year, a new Centennial State Park will be designated to commemorate 100 years of Wisconsin's park system.

State trails take many different paths

Our reliance on nature for both mental and physical health leads people down many paths. State trails are designed and developed in many ways for many uses — smooth, flat, paved trails for people who use wheelchairs and in-line skaters, crushed limestone trails for touring bikes, undulating wooded trails for cross-country skiers, wider trails for horses, hilly trails for mountain bikers and hikers.

Sorting out trail uses and accommodating different activities takes people management and cooperation. Clearly skiers, snowmobilers, snowshoers and dog-sledders cannot all vie for the same turf at the same time. Trails that are used extensively for mountain biking need more maintenance than trails that only receive foot traffic. Similarly, nature trails can be designed so that people using wheelchairs, people with visual impairments and those walking can equally enjoy the narration. At Paradise Springs Nature Area in the Southern Unit of the Kettle Moraine State Forest, cables and posts along a 16-stop nature trail provide the means for visually impaired visitors to take their own self-guided tour.

Mileage of State Managed Trails

hiking trails	1,610.8 miles
nature trails	238.3 miles
touring bike trails	587.6 miles
mountain bike trails	385.8 miles
horse trails	541.8 miles
ski trails	698.6 miles
snowmobile trails	974.6 miles
all-terrain vehicle trails	394.5 miles
Total state trail miles	1,787.2 miles

(includes multiple uses on some trails)

Bearskin Trail (left)

Leaders in rails to trails

Nearly 20 years ago, Wisconsin pioneered the concept of converting abandoned railroad rights-of-way into recreational trails. These scenic corridors could often be purchased from willing sellers, the routes had mild grades, often bridges, tunnels and overpasses were in place and the routes brought visitors along side rivers, streams, wetlands, woods and fields. Communities along the converted trails are learning that two-wheeled and other visitors

Peninsula State Park

can equally enjoy the local sights, restaurants and lodging that were part of the great charm of rail travel. Bed & Breakfasts, bike shops, bakeries and grocery stores and side attractions along the routes can draw bikers in summer and snowmobilers in winter. Bike routes are linear parks that can form the base for a day trip, weekend getaway, formal tours or longer, more leisurely travel as people visit parks and communities along diverse routes. Linked trails create a network of off-road adventure that allows bikers to crisscross the state on their own quiet corridors without the danger of cars, trucks or other motorized vehicles.

Moreover, trails have created partnerships with counties and towns that manage many of these scenic byways. Of the state's 701 miles of converted trails, 316.4 miles are developed, managed and maintained cooperatively by counties and villages.

The Old Abe Trail

So, who creates Wisconsin's trails? In some cases, it is local people interested in recreation, service and economic development. For example, the Old Abe Trail between Lake Wissota, near Chippewa Falls, and Cornell, 16 miles away,

Trails managed by counties

Hillsboro State Trail (Union Center to Hillsboro)	4.3 miles
Ahnapee State Trail (Sturgeon Bay to Casco Junction)	28.6 miles
Cattail Trail	17.8 miles
Gandy Dancer Trail (St. Croix Falls to Superior)	61.7 miles
Mascoutin Valley State Trail	11.1 miles
Mountain-Bay State Trail (Wausau to Green Bay)	80.5 miles
Old Abe State Trail (Chippewa Falls to Cornell)	15.9 miles
Pecatonica State Trail (Belmont to Calamine)	10.0 miles
Saunders State Trail (Superior to Frogner, MN)	8.4 miles
Wild Goose State Trail (Fond du Lac to Clyman Junction)	32.0 miles
Wiowash State Trail (Oshkosh to Hortonville & Split Rock to Aniwa)	50.5 miles

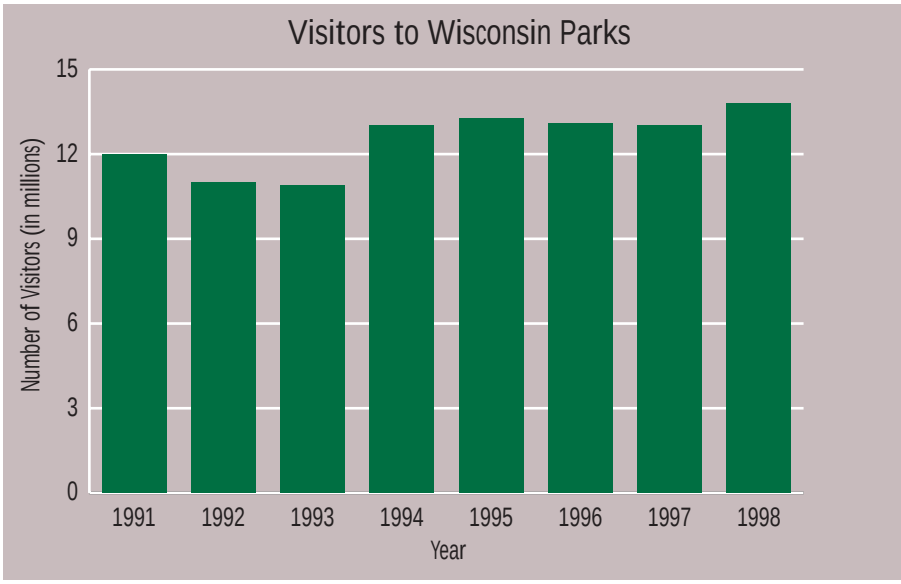
connects two state parks— Lake Wissota and Brunet Island — and it serves as the northernmost link of the Red Cedar and Chippewa River Trails.

While the DNR owns the right-of-way, Chippewa County and Friends of the Old Abe Trail raised the funds, developed the trail and oversee day-to-day maintenance. The Friends group raised $50,000 in private donations, while Chippewa County contributed $75,000. Chippewa County also received matching state and federal grants for this effort — the DNR provided $30,892 for snowmobile trail funds, while two Federal National Recreational Trails Act grants provided $133,818. In addition, the Lions Clubs of Cornell and Jim Falls, the Noon Kiwanis and Early Risers of Chippewa Falls, Kell Container Corporation and Northwestern Bank provided significant help. This asphalt-paved trail can be used by bicyclists and in-line skaters, and snowmobiles in the winter. A parallel trail for horses was built between Lake Wissota and Jim Falls.

The partnership also divides the proceeds, with 70 percent of the proceeds from the sale of passes to use the Old Abe Trail staying in Chippewa County for trail maintenance.

Opening the door to the outdoors wider

People with disabilities also are enjoying greater access to our state's natural treasures at state parks and trails. All newly constructed contact stations and toilets/showers on state properties are fully accessible. Some paved trails, parking stalls, picnic areas and disabled campsites have been revamped to accommodate all visitors. For those unable to enjoy outdoor campsites, volunteers have helped the state fund and construct three wheelchair accessible cabins at Mirror Lake and Potawatomi state parks as well as Ottawa Lake in the Southern Unit of the Kettle Moraine State Forest. A fourth cabin is being built at Buckhorn State Park and will open this spring. A more rustic cabin for people with disabilities will open this year at Copper Falls State Park.



Stretching the camping season

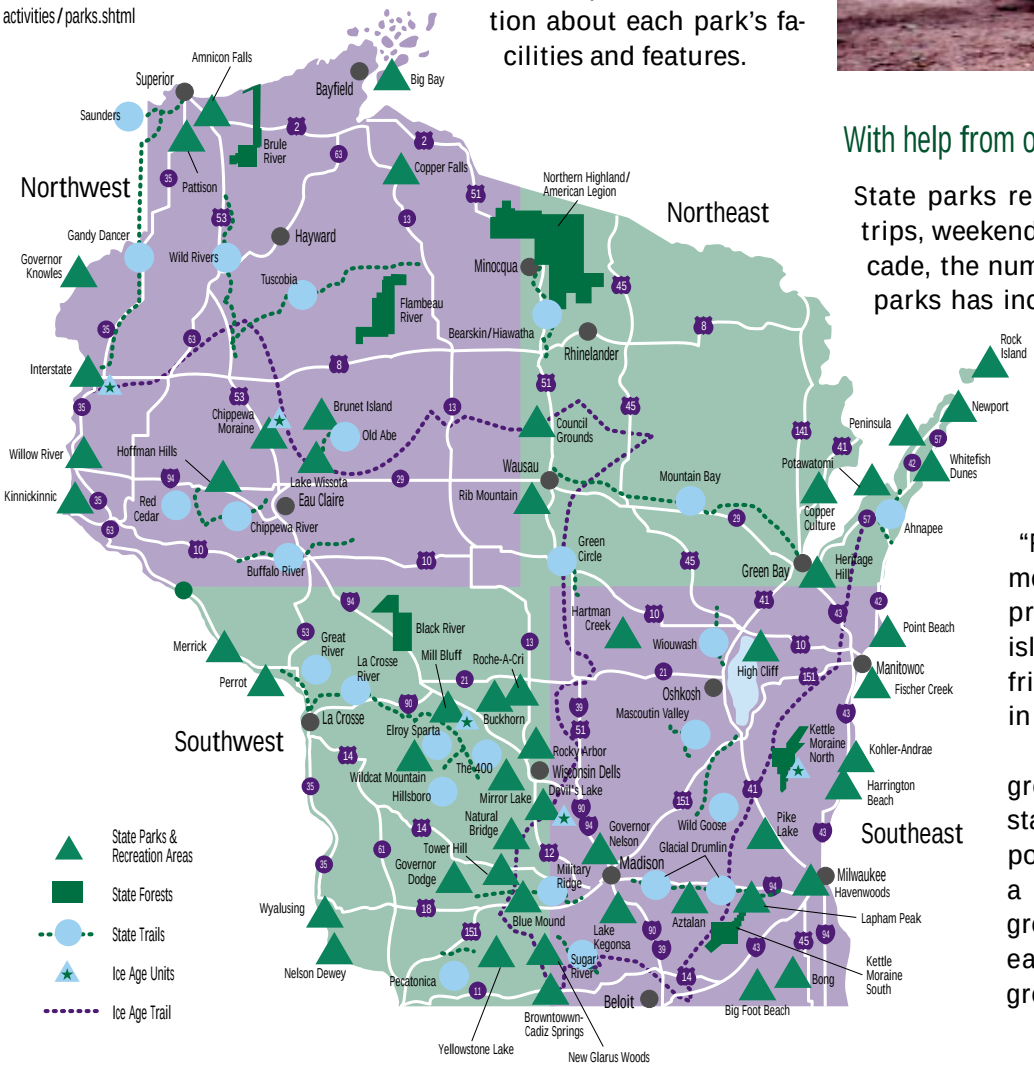
Winter camping is increasingly popular as lightweight sleep pads, sleeping bags, tents and apparel ensure that the hardy camper can stay warm and relaxed as the temperature drops. Cold-weather campers enjoy the crisp weather, fewer people and the chance to break-in the trails when fresh snowfalls provide a chance to strap on skis, snowshoes and skates. Winter campsites are available at Big Bay, Blue Mounds, Buckhorn, Copper Falls, Devil's Lake, Governor Dodge, High Cliff, Kohler-Andrae, Lake Kegonsa, Mirror Lake, New Glarus Woods, Newport, Pattison, Peninsula, Potawatomi, Willow River, Wyalusing and Yellowstone state parks as well as the state forests at Black River, Brule River, Flambeau River, the Kettle Moraine, Northern Highland/American Legion and Point Beach.

Making campsite reservations easier

Beginning April 15, 1999, campers were able to call a single, toll-free phone number for making camping reservations at any Wisconsin state park and several state forests. Under the new statewide reservation system, campers can survey state campsite availability in any area of the state. When a requested state park is full, alternate state park campsites are recommended. When state parks are full, referrals are made to private campgrounds in the area. The new phone reservation system helps campers save time and eliminate the uncertainty of the paper forms used in the past. In June, campers were able to reserve spots 24 hours a day through a World Wide Web site, www.wiparks.net, and learn detailed information about their campsite, such as its length, the number of vehicles and occupants allowed per site, and other important information about each park's facilities and features.

For more information:

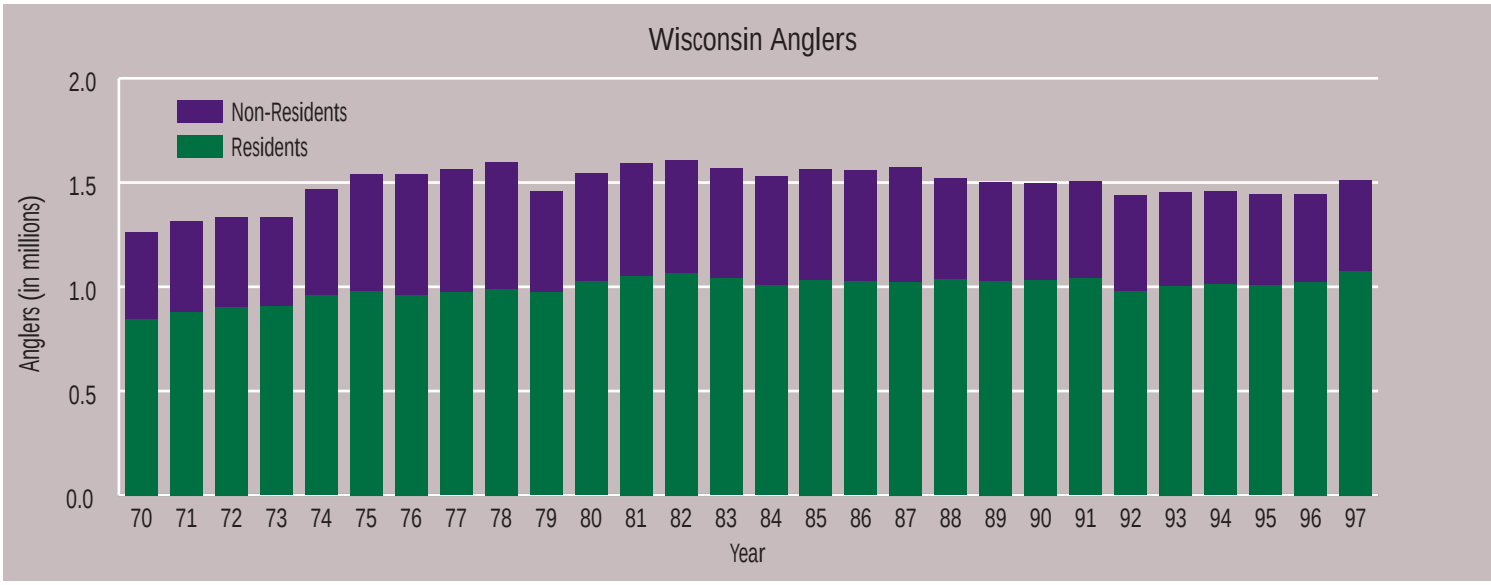
http://travelwisconsin.com/activities/parks.shtml



With help from our Friends

State parks remain popular places for day trips, weekends and camping. In the last decade, the number of visitors enjoying state parks has increased by 2 million annually. Maintaining properties and hosting that many guests takes help. Though parks staff has not substantially grown, enthusiastic support from volunteer park "Friends groups" has grown tremendously. Further, two grants programs authorized by the Legislature match money raised by friends groups for improvements in state parks.

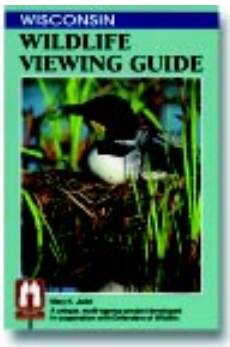
More than 65 friends groups now support individual state parks, nine concession corporations operate state trails and a golf course, seven friends groups bolster state wildlife areas, and at least another 15 groups are forming.



Wildlife Watching

Next to gardening, wildlife watching is the nation's most popular outdoor pastime, far surpassing time and money spent watching team sports. The number of wildlife watchers in Wisconsin has increased to 2,074,000 annually according to the 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation; this is one of the greatest numbers of wildlife watchers in the country. Wisconsin residents spend almost $592 million annually observing and photographing wildlife species. This "nonconsumptive" hobby generates a healthy economy for equipment, travel, membership dues, contributions, subscriptions, land leasing and ownership and permits.

In recognizing increased interest in wildlife viewing near our homes, DNR wildlife staff promote wildlife watching in Wisconsin on state-managed properties. To help people locate viewing sites, wildlife staff, in cooperation with the state Department of Transportation and local highway departments, has posted highway signs with a binocular logo that point the way to public lands where wildlife may be most readily seen. The "Wisconsin Wildlife Viewing Guide" provides directions to 76 of the state's premier wildlife areas that are managed to sustain diverse populations of wildlife year-round. Descriptions with each property advise the adventuresome traveler when to time visits to see wildlife at peak periods when species naturally flock, feed or migrate.

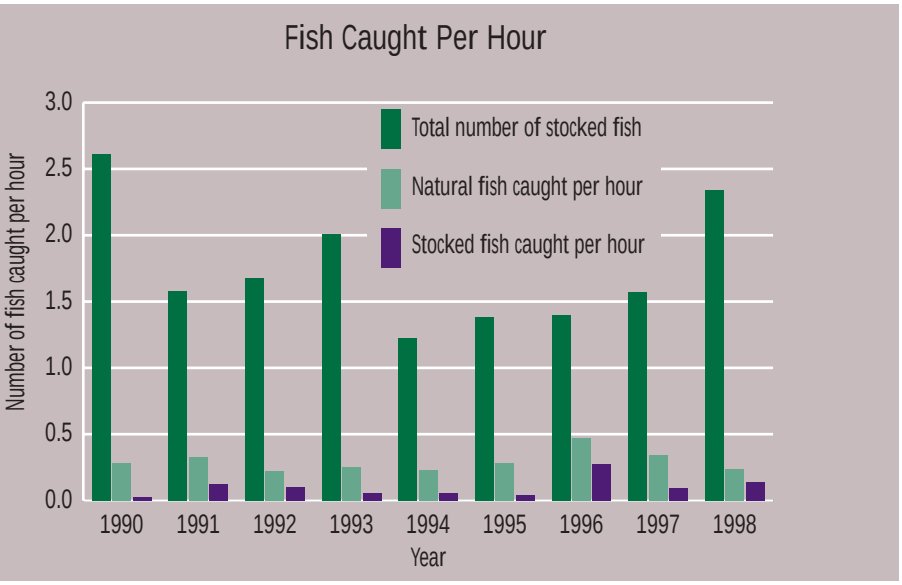


Fishing: Anglers and Angling Opportunities

Fisheries biologists continue to provide anglers in Wisconsin with a variety of fishing opportunities ranging from catch-and-release to trophy fisheries.

The number of licensed resident and nonresident anglers participating in the sport varies from year to year, but over the last 30 years has remained fairly stable, averaging 1.5 million adult anglers. About 37 percent of Wisconsin residents age 16 and older say they use waters of the state for fishing, and an estimated 537,000 nonresidents annually visit the state to fish. The University of Wisconsin and the Wisconsin State Demographer estimate that the number of anglers will increase four to seven percent between now and the year 2007.

Canoeing skills training



The catch-and-release philosophy is taking hold among anglers. Musky anglers in particular are willing to release their fish to fight another day. Over the last decade, musky anglers on average caught one musky every 24 hours and kept a fish every 500 hours. In 1998, those figures grew to 27 hours and 3,333 hours respectively. That's the equivalent of anglers keeping only one musky for every 123 they catch.

New license system increases convenience

In March 1999, the DNR launched its Automated License Issuance System (ALIS) which allowed hunters and anglers to buy all licenses and permits at all license agent locations and through a toll-free telephone number. The new system, run by private contractors, replaced the century-old paper based license sales system. After experiencing operational problems during peak sales periods in its first six months, the contractor corrected system problems and the system worked flawlessly in time for the gun-deer season, traditionally one of the heaviest license sales periods each year. The department sold 690,104 deer-hunting licenses for the 1999 gun-deer season — the second highest figure ever, including more than 45,000 transactions totaling $1.687 million in sales on the day before the season opened.

In 1998, 95,130 bonus deer gun permits were sold over-the-counter, all of them at DNR locations. Because of the greater availability offered by ALIS, a total of 203,358 bonus permits were sold in 1999, most of them by non-DNR vendors. At $12.00 each, the increased revenue generated by these additional 108,228 permits was $1.3 million, all of which is earmarked for the wildlife damage program.

Balancing recreational pursuits

Strong interest in fitness and new recreational equipment increases the numbers of people on trails, roads and waters each year. Naturally, there are conflicts as more people want to use the same resources at the same time, and each faction feels "pitted" against another interest — motorboaters vs. canoeists, personal watercraft vs. anglers, skiers and dog-sledders vs. snowmobilers, hikers vs. mountain bikers, horseback riders vs. bikers, for instance. Sorting out which activities can be reasonably accommodated remains a significant challenge. DNR park's staff and wardens perform a delicate and marvelous task when they help society to balance our variety of recreational pursuits.

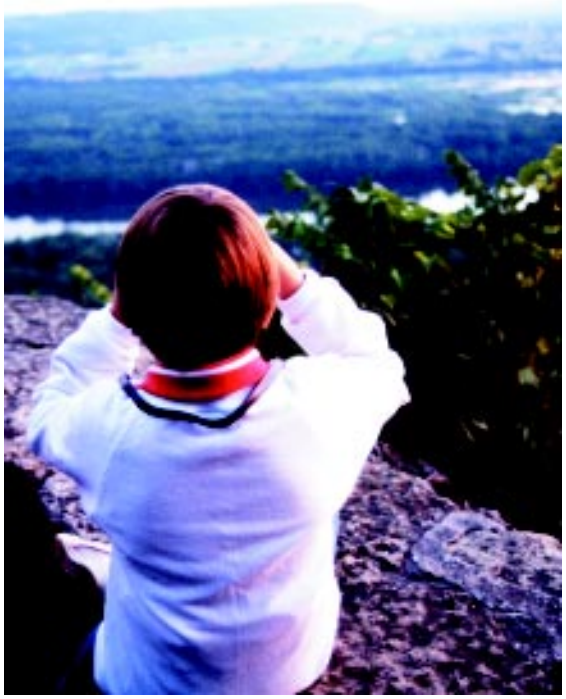
Technology also challenges how we view the changing ethics of outdoor recreation. Laser sights, remote listening devices, and compound bows all change the nature of hunting just as personal watercraft have greatly changed our vision of boating. Fish finders, underwater video cameras and Geographic Positioning System (GPS) units lead us to question what constitutes fair pursuit of fish. Boom boxes, televisions and high-tech recreation vehicles contrast with the historic definition of camping.

Changing practices like deer and bear baiting, and potential quarry like timber wolves and mourning doves splinter hunters and nonhunters alike leading them to question what constitutes fair chase and ethical sport.

The job of sorting out these situations is initially left in the hands of wildlife managers, fisheries staff and parks managers, but these conflicts can soon find their way into the courts and the state house.

CHAPTER SIX

Where from Here?



Wyalusing State Park

"Our every action changes nature and alters the course of history, so that the chief environmental riddle of living a moral life is not whether to change nature — John Muir's question — but how to change it," writes University of Wisconsin environmental historian William Cronon in "Landscape and Home: Environmental Traditions in Wisconsin." "The great challenge we face is to do right by the land we have made our own. 'We can be ethical,' Leopold wrote, 'only in relation to something we can see, feel, understand, love or otherwise have faith in.' That is easier to do in our own backyards than anywhere else, and seemingly easier in Wisconsin than in most other places."

This inaugural report details some of the efforts DNR and partners have made to "do right by the land." We look to you, as a customer of the DNR, a person whose health, livelihood and quality of life depends on a clean and healthy environment, and a wise, sustainable steward of our collective and precious natural resources to tell us how we're doing. We also want to know what you think we should evaluate, highlight and report on in our report next year.

Because of limitations on space, and in some cases, inadequate data, we can't assure you that each and every issue that you raise will appear in the next report. But we will consider them all and try to add ones with statewide or regional importance that are mentioned by a large number of readers. You can send us a letter with your suggestions, or click on to the DNR's web site:

By mail:

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Thank you very much for taking the time to read this report and suggest ways to improve it in the future!

Sincerely,

George